

American Artisan

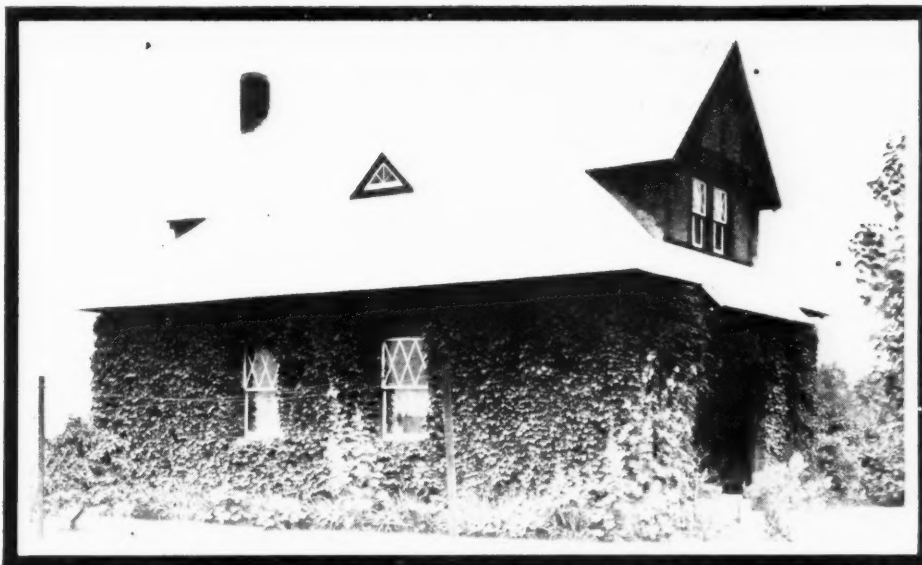
Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 97, No. 2

CHICAGO, JANUARY 12, 1929

\$2.00 Per Year



A Garage Attractively Roofed With Standing Seam Zinc Roofing

A SOFT GREY, that attractively blends with the colors of any season, is one of the advantages of The New Jersey Zinc Company's Zinc Roofing. ■ Also it is one of your advantages. Enhancing the appearance of dwellings and other buildings, it enlarges your sales points to prospective users. ■ Rust proof, no upkeep, no repairs, permanence AND LOWEST COST PERMANENCE, attractive color. All these features of The New Jersey Zinc Company's Zinc Roofing . . . Standing or Batten Seam . . . make it easier for you to sell. ■ And its WORKABILITY makes it easiest for you to install.

The New Jersey Zinc Sales Company

DISTRIBUTORS OF THE PRODUCTS OF THE NEW JERSEY ZINC COMPANY

160 Front Street
New York

THE NEW JERSEY ZINC SALES COMPANY
160 Front Street, New York

Please send me full information on the New Jersey Zinc Company's Zinc Roofing.

FIRM

MR.

ADDRESS

THE NEW JERSEY ZINC COMPANY'S ZINC ROOFING

ROBINSON

Heat Distributor

THE only thing a furnace fan can do is force the warm air through the pipes, distributing it to the various rooms.

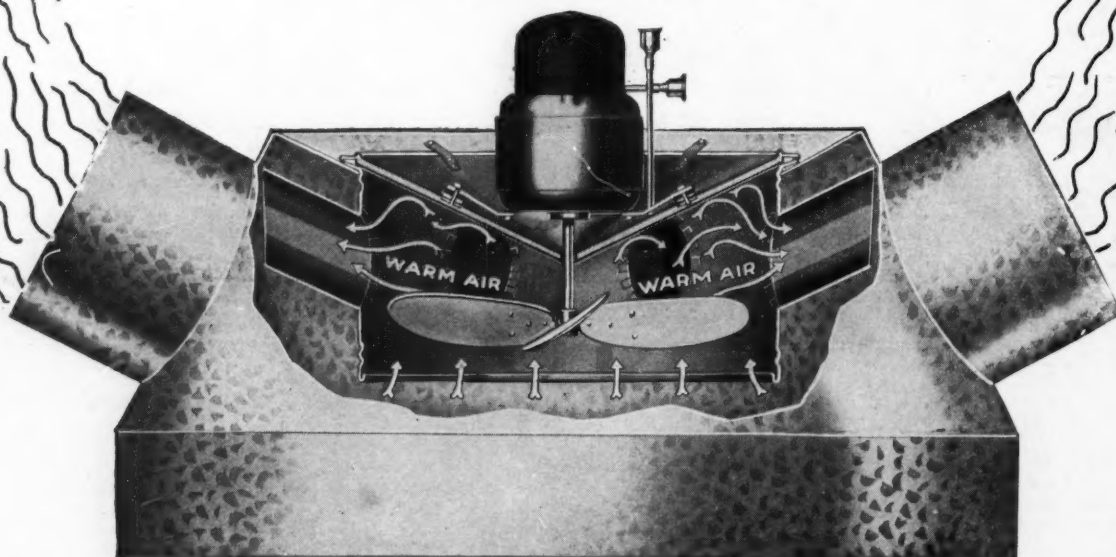
This provides quicker heating, economy of fuel and better heating results of course, but the big job of the furnace fan is to **FORCE THE WARM AIR**. In practically every installation one or more rooms need favoring.

The ROBINSON Heat Distributor is the **ONLY FAN THAT DISTRIBUTES THE HEAT WHERE YOU WANT IT TO GO and IN THE DESIRED AMOUNT.**

It is the only fan on the market that is placed so that the warm air is forced directly into the pipes desired.

There are more reasons why it is the leading furnace fan—just write to us or any of the jobbers listed below for full detailed information and prices.

The A. H. ROBINSON COMPANY
MASSILLON, OHIO



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CARR SUPPLY CO. Chicago, Ill.
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DEMMLER BROS. CO., Pittsburgh, Pa.
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WESTERN STEEL PRODUCTS CO. Duluth, Minn.
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Here They Are---You
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THAT all Midland Furnaces will embody all refinements and advancements to make them the *Perfect* furnace.

THAT we will build to the best of our ability, such products as will bring praise to our industry and satisfaction to our users.

THAT we will construct America's finest all steel furnaces in quantity and at a price within reason.

THAT we will co-operate with our dealers, giving them our best in quality merchandise and sales promotion, with the one aim "To Serve Better."

THAT at all times Midland guarantees will be backed by the full assets of our company.

THAT we will always be fair to our competitors, just to our dealers and honest to our users.

THAT our every act will bring honor to our great industry and our growing organization.

R. C. Walter

President

THE MIDLAND FURNACE CO.
COLUMBUS, OHIO

1929
will be
a
MIDLAND
year



*A new quarter million dollar
plant now producing furnaces
exclusively and not as
a side line.*



TRUESTEEL

YOU will find it easier to sell the TRUESTEEL, because you present to your prospect "Cleaner Heat" at a price within reason.

There is some territory still open. Write today and let us tell you about the TRUESTEEL Exclusive Franchise and the TRUESTEEL Co-operative Sales Plan of The Midland Furnace Co.

The TRUESTEEL Franchise in your territory will make you the leader in your field.

MIDLAND FURNACES

ALL STEEL ♦♦♦



CLEANER HEAT

"They" Insist It's Right!

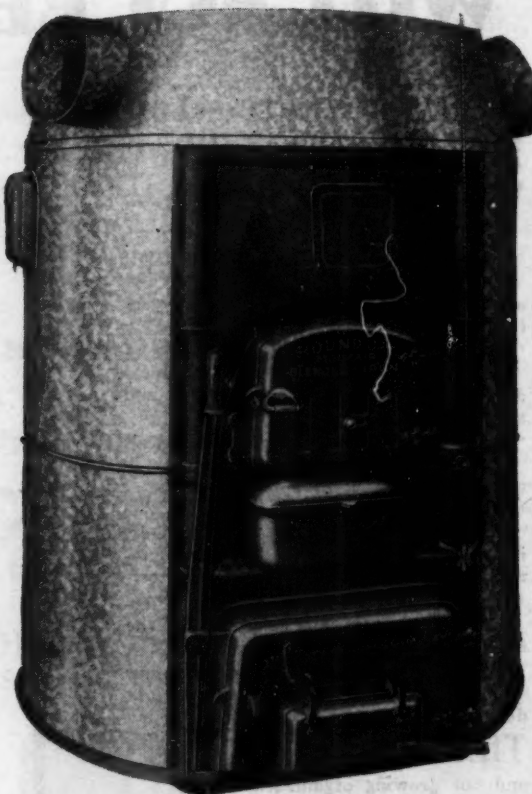


Fred R. Dowsett
Vice-President and General Manager

The straight line quality-quantity production we promised is now a reality.

The "New Order of Things" with its savings and its absolute accuracy of fittings, mountings and assembly provides a sale attraction more powerful than heretofore obtainable.

Promises exemplified in fact—alone serve intelligent Merchandisers.



Who Are "They"?

Ten Sales Managers of probably the ten leading Furnace Merchandising Organizations have affirmed that the **NEW ROUND OAK** lines are "right" in *appearance—refinements—construction and value.*

The judgment of men whose merchandising experience represents Furnace Sales running into thousands of units yearly, is intelligent—practical—Dollar and Sense judgment.

It is vitally important to us to receive such endorsement.

We will gladly give you particulars of these new marketing values designed to open up greater Sales Volume.

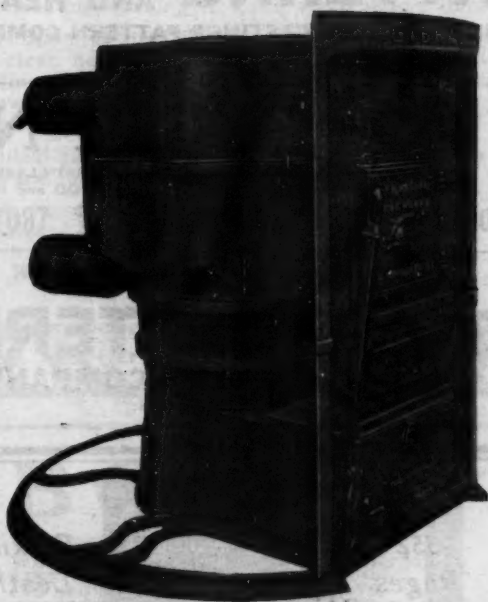
The New Gas Range lines will be available for inspection January 15, 1929

THE BECKWITH COMPANY, Dowagiac, Mich.

"Round Oak Folks"

Established 1871

the new GIBRALTAR FURNACES



AT the left is the NEW GIBRALTAR SELF-CLEANING OPEN DOME FURNACE, with dome made of single heavy casting, corrugated to increase strength and heating surface.

This unit is so constructed that there can be no accumulation of soot and ashes. The Feed Section, cast in one piece to eliminate joints, prevent dust, gas, or smoke leakage. The large combustion chamber is ideal for burning soft coal or oil.

THE illustration at the right pictures the NEW GIBRALTAR TOP RADIATOR FURNACE, a highly improved unit designed to operate economically with maximum efficiency. Note all sealed joints and extra large radiator.

The GIBRALTAR line is complete. The range of sizes and types is wide enough to meet every requirement. New and patented features make GIBRALTAR FURNACES easy to sell. The NEW GIBRALTAR embodies every improvement and refinement that years of service have shown to be practical or desirable.



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P.H. MaGirl Foundry & Furnace
Works
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Cut Your Coal Bills

with

"SHEER COMFORT"

Automatic Electric
HEAT CONTROL

REGULATOR
ON YOUR
FURNACE

DEALER'S PRICE
Only
\$17⁵⁵

Write
or
Wire

H. M. SHEER CO.
Quincy, Illinois

Dept. AA

Established 1888



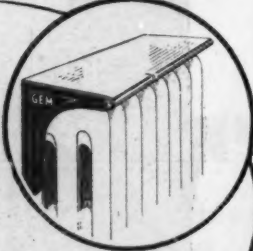
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Adjustable
RADIATOR SHIELDS

A pleasing feature that helps the sale of "GEM" Adjustable Radiator Shields is the fact that they make attractive extra mantels or shelves for the display of vases, book ends, and the like. 10 popular sizes, gold-bronze, aluminum or ivory finish. Adjustable to radiator top widths 6" to 13"; lengths 11" to 65". Beh & Co., 1140 Broadway, New York, N. Y.

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In white or colors to suit your taste. The improved insulation and covering for furnaces and boilers.


IT'S FIRE AND WATERPROOF

Makes every pipe and fitting 100% seamless. Every heating plant should be properly insulated—few of them are. Here is a sales opportunity often overlooked by the average furnace dealer but one which offers a profitable business to those who take advantage of it.

**It's so easy
It spreads
With a Brush**

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or write for
Dealer's Proposition today

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Des Moines Iowa



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Roof Cement — Stove Putty
Plumbers Putty

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IN WOOD and IRON

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QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

352 Pages

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165 Tables

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Measures 4 1/2 x 5 in.

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This Book Covers Simple Geometry and Every Phase of Modern Pattern Cutting

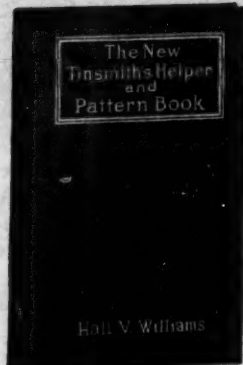
from the making of every type of Seam, Lap and Joint, to Conical Problems and Tinware, Elbows, Piping, Ducts, Gutters, Leaders, Cornice and Skylight Work and Furnace Fittings.

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and better

STEEL FURNACE

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It has all the usual qualities of high grade steel furnace design and construction *plus the greatly increased radiating surface of three large cast radiating flues.*

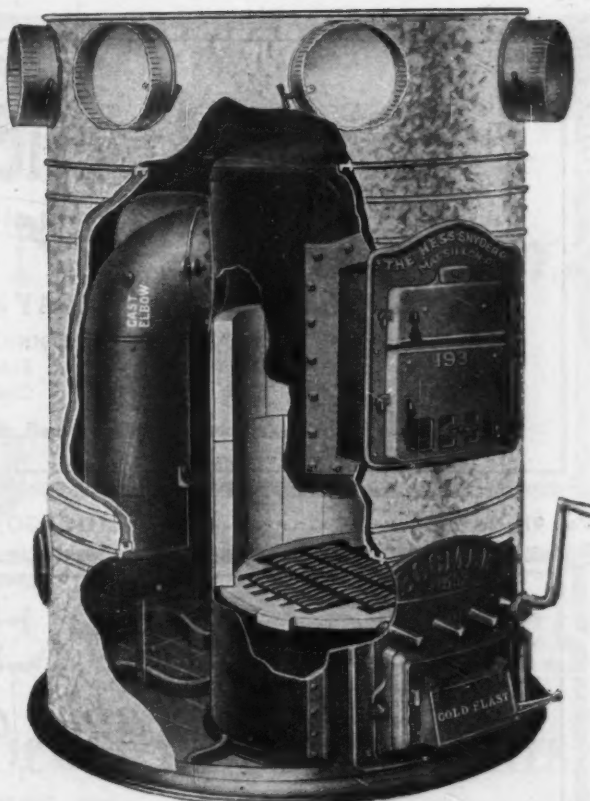
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Boomer dealers are having large profitable Boomer Steel Furnace sales.

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WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS. CATALOG ON REQUEST.

THE LAMSON & SESSIONS CO.
THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.

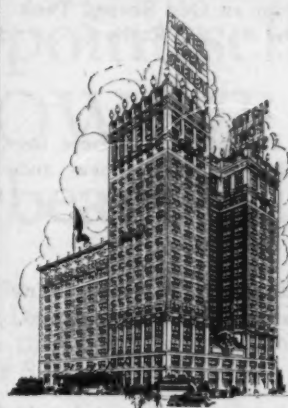
McILVAINE

OIL BURNER

Listed by Underwriters
Adaptable to warm-air furnaces because the McILVAINE System of continuous flame insures no cracking or burning of fire pots, but produces even, dependable heat.
Not an Intermittent Burner
DEALERS: Write for information today.
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900 reposeful, Servidor-equipped guest rooms; four restaurants. Many excellent rooms at \$3, \$3.50, \$4 a day; also larger, more richly furnished rooms and suites. Guests arriving by motor are relieved of the care of their cars at the hotel entrance.

Maynard D. Smith, President J. E. Frawley, Manager

Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription
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PITY PROPERLY PLACED

I pity no man because he has to work. If he is worth his salt, he will work. I envy the man who has a work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success—the qualities of hard work, of keen intelligence, of unflinching will.—

THEODORE ROOSEVELT.

1928

was a **SUNBEAM** year!

for

1929

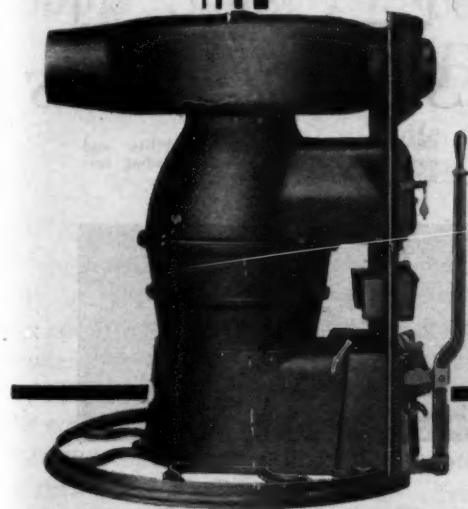
SUNBEAM offers

1. Still more improvements.
2. A NEW Steel furnace.
3. A complete furnace line.
4. The 4-point selling plan.
5. The **LOWEST PRICES** in Sunbeam History.

Return the coupon and obtain the remarkable Sunbeam Dealer Proposition. It is so attractive that more than 600 Heating Contractors started to handle the Sunbeam line in 1928.

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Largest Makers of Heating Equipment in the World



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WARM-AIR FURNACES



Gentlemen:

If we can obtain greater profits with the Sunbeam Furnace line, we may be interested in your proposition. Send us complete information. Also the 40-page Heating Manual.

Name

Address

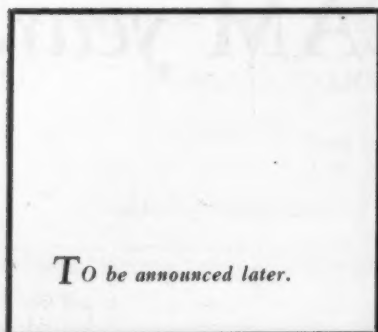
City and State A-2

Mention **AMERICAN ARTISAN** in your reply—Thank you!

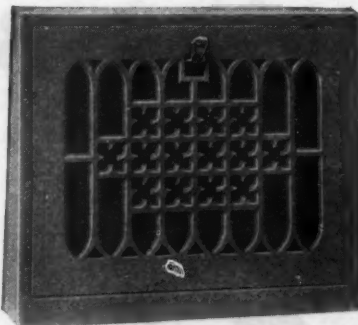
TUTTLE & BAILEY SUPER-REGS

REGISTERED U. S. PATENT OFFICE

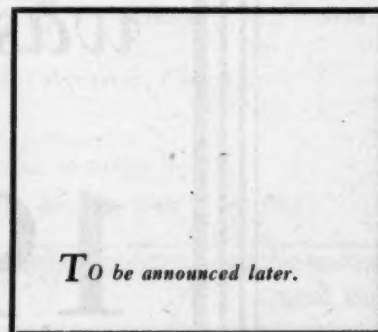
NEW SUPER-REGS FOR 1929!



To be announced later.



Tudor Design



To be announced later.

Ferrocrafft Registers for Baseboard and Sidewall

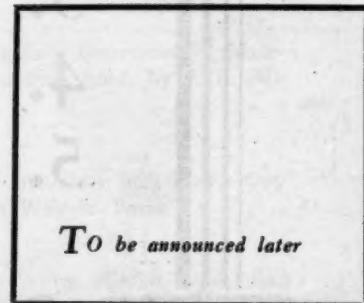
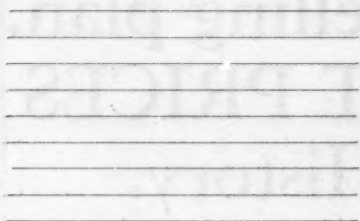
THIS is a new departure in register design. It is but a necessary step toward harmonizing the register with other modern home equipment. The fret-work is a **FERROCRAFT Cast Grille**, selected from the

Ferrocrafft Collection, which has won wide fame in the Architectural and Building fields. The two-piece construction with removable face is a cure for streaked walls and allows easy cleaning of duct. The same de-

signs and construction are offered in both sidewall and baseboard Ferrocrafft Registers.

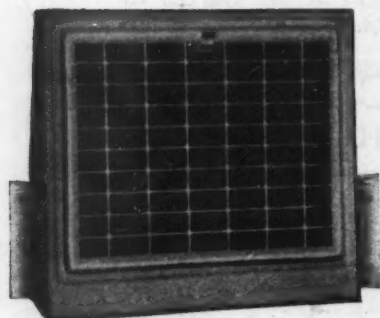
Only one of the artistic designs is illustrated here. Another will be shown in an early issue. Watch for it!

Another New One for the ? ? ?



To be announced later

Tried and True SUPER-REGS



Style 902 Baseboard Register

The T&B Line holds many old friends of the furnace man. He has known them for years as the kind of Registers that help to sell more furnaces. Beautiful modern

color finishes, strength, durability and mechanical perfection are outstanding features of T&B Super-Regs.



Style C "Cobble" Cold Air Face

TUTTLE & BAILEY MFG CO.

Established 1846

441 Lexington Avenue, New York City

Chicago

Boston

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Bridgeburg, Ont.

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American Artisan

The Warm Air Heating and Sheet Metal Journal



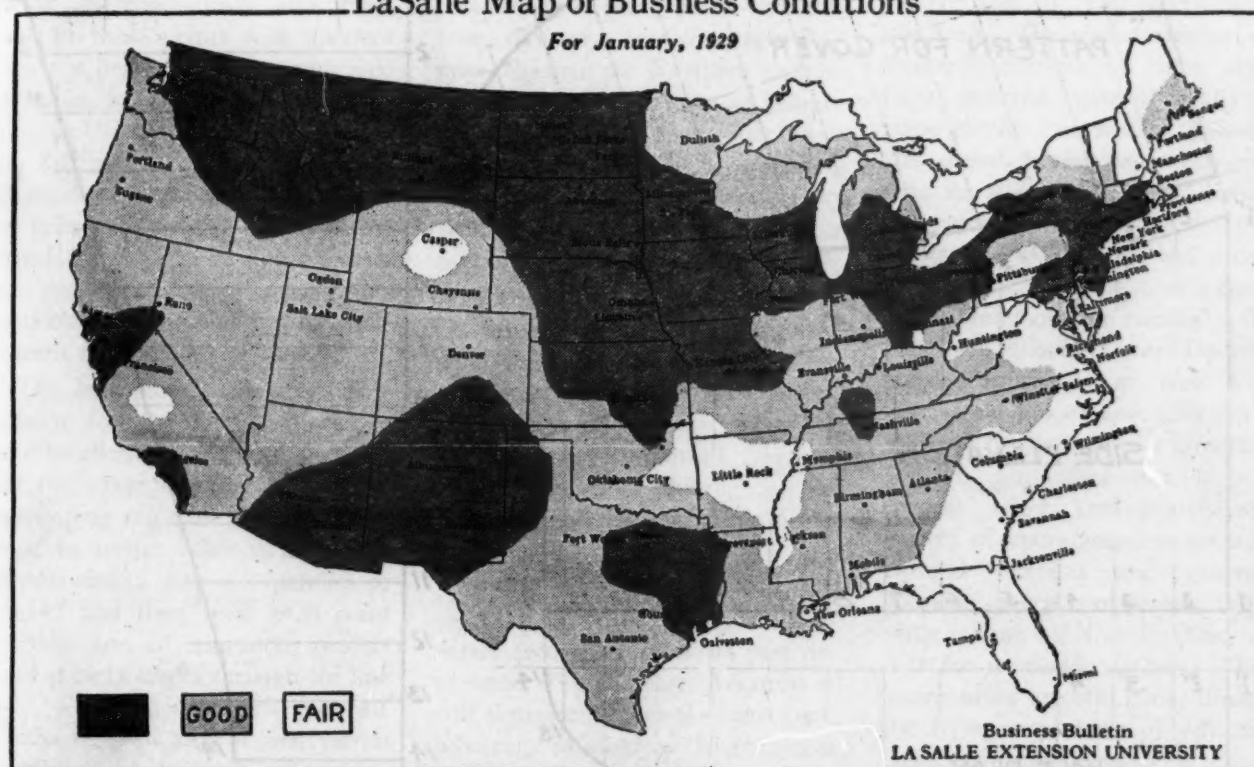
Vol. 97

CHICAGO, JANUARY 12, 1929

No. 2

LaSalle Map of Business Conditions

For January, 1929



A Section-by-Section Study of the Current Business Map

Some States Prospering—Others Still in Doldrums of Business Depression

Rate of Production Industrially About
10 Per Cent Greater Than Year Ago

IN view of the fact that the purchasing power of any community, section of the country, or of the country as a whole itself is dependent upon whether or not the industrial or agricultural pursuits of the country or section of the country are prosperous, it might be well to review the condition of the industrial or agricultural pursuits of the various sections of the country, in order to get some idea of what might be expected in the way of increased business during 1929.

The following sectional survey was taken from the Business Bulletin

of the La Salle Extension University, Chicago:

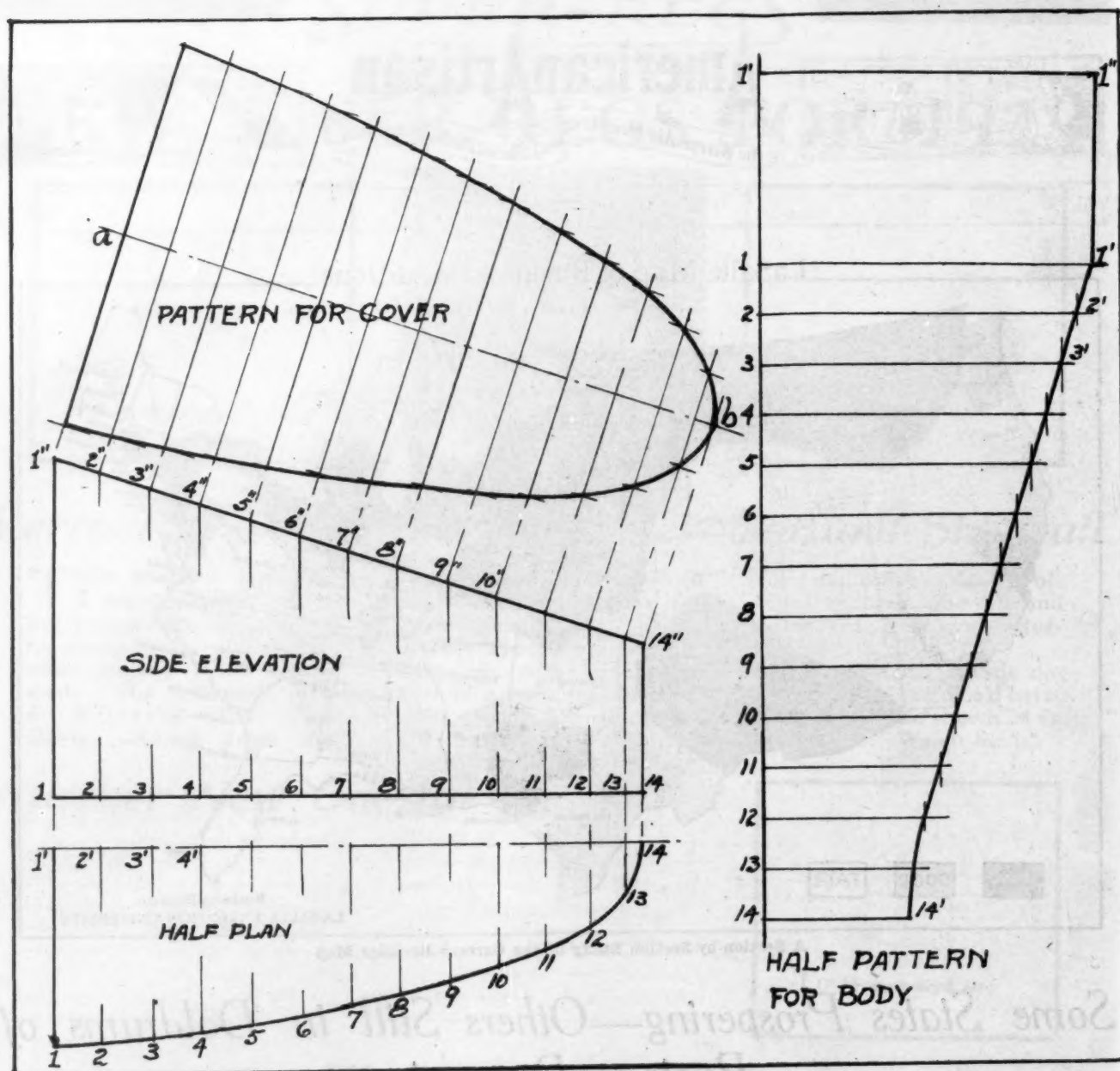
"The year opens with an unusual activity throughout our industrial sections, for we are turning out goods at a rate about 10 per cent greater than a year ago. This industrial activity is the principal cause for what we have called in earlier months the Belt of Prosperity which is so striking a feature of the present business map.

"Our agricultural sections, too, are prosperous. Throughout the great grain, cattle, and hog raising sections of our West and North-

west, the farmers have an unusual purchasing power. The cotton-growing sections of our South and West are enjoying a prosperity greater than that shown by the map, for in these sections the poor returns of earlier years have absorbed much of the purchasing power which is now being released by the marketing of an ample crop of rather high-priced cotton.

"Pacific States. California and Washington are almost uniformly rejoicing in ample crops for which a market is being found at fair

(Continued on Page 53)



Patterns for an Odd Shaped Tank

Constructing Pattern for an Odd Shaped Tank Often Met With

*Accompanying Illustration Shows
Half Pattern of Drawing as Made*

By O. W. KOTHE, Principal St. Louis Technical Institute

IN the sheet metal industry many peculiar shapes are encountered. There are no two alike, since every problem must be made to fit a certain position. In our case we have a semi-elliptical tank, as a half plan shows. The side elevation indicates a sloping cover, which would, no

doubt, be assembled securely to the body, so it would fit in a close position.

We first draw the side elevation, giving length of tank, as 1-14, and then adding the height to the back 1-1" and height of the low side, as 14-14". This enables us to make

the slope line 1"-14". We now draw the plan where 1'-1 is the half width and then we must sketch in the curved line, as 1-14, to suit the curvature desired. This can often be done by means of an ellipse or by taking a pliable wooden strip and bending it while holding in several

positions to make the desired curve. Next divide this curve into any number of equal spaces and erect lines into the side elevation. By this process we see that each of the lines becomes shorter as we near the small end.

To develop the pattern for the body we pick the girth from the plan and set it off on the line 1'-14'. Draw stretchout lines and from each of these points with dividers pick the height of lines from side elevation, as 1-1", and set in pattern, as 1'-1", also 1-1'. Then pick line 2-2" and set as 2-12' in pattern. Continue this process of stepping off lines until point 14-14' is established. This enables sketching a line through all points where intersections are made and you have the pattern for the body of tank.

The half plan is already a half pattern for the body only edges need be allowed for assembling. But for the cover in order to fit over the sloping top a new development must be made. This is best done by drawing a line a-b parallel to 1"-14" and then from each point in this line of elevation project lines at right angles through the line a-b. With dividers pick the half widths of plan as 1'-1 and set on each side of line a-b of similar number. Next pick the width 2-2' from plan and set in pattern from line a-b. In this way the widths of plan are transferred into pattern for cover and by having length to correspond with slope of elevation the correct fit is made. To this edges must be allowed for assembling whether riveting, seaming or welding.

BUSINESS OUTLOOK

(Concluded from Page 51)

prices. In Oregon the situation is somewhat more spotted. Fresno, Calif., is still suffering from the pangs of an earlier overexpansion. It cannot find a profitable market for all the grape and grape products it is producing.

"Industrially these states are active, with increased movements in oil, lumber, and mining.

"The Mountain States. The low-

lying sections of Arizona and New Mexico have become important factors in the growing of cotton, and in both states this crop has been very profitable.

"The mining interests of all these mountain states have been stimulated by the increased demand for copper. It is only in the oil sections that business is but 'fair,' and here comparison is being made with the boom days of a few years ago. Potato crops of the Northern section in this tier of states are so abundant as to threaten a no-profit market. Yet steps are being taken through co-operative marketing to send so limited and very select a portion of this crop to market as to assure fair prices.

"South-Central States. That vast empire, Texas, is enjoying distinct prosperity in its cotton-raising areas. New sections are tasting the thrill of boom days in oil. And its cattle country is sharing in the profits which the new cattle prices make possible.

"Oklahoma's fortunes still depend largely on oil, which is fortunately recovering from its past depression. To the east, Arkansas is still depressed. For the most part, however, Mississippi River states have largely recovered from the effects of 1927's flood and are enjoying ample cotton incomes. Kentucky and Tennessee will make money on tobacco this year, and throughout all this territory the manufacturing and lumber industries are playing an important part in maintaining excellent purchasing power.

"North-Central States. That part of this group of states which lies west of the Mississippi River is enjoying not only a rather unusual agricultural prosperity, but has its share of manufacturing and commercial interests which are showing above-average profits this year. The states in this group which lie east of the Mississippi River are gaining their prosperity more through manufacturing than through agriculture. The coal-mining areas of Illinois, Indiana, and Ohio are still distinctly depressed.

"South Atlantic States. The group of states which make up our Southern sea coast has been unusually disturbed by wind and rain during the summer and fall. Florida has lost much of its citrous crops. The other coast states have lost heavily in cotton yields and in other ways, with the result that this section is at the moment the most extensive area of 'Fair' territory on our map. The manufacturing and business interests of these states have suffered sympathetically to some extent. Fortunately, however, this section having had much more than its share of weather disturbances during the past few years, by the law of averages, it has a right to expect far more favorable conditions throughout the coming years.

"North Atlantic States. The present-day prosperity of New York City is prodigious and sufficient to bring up the average of a hinterland far less prosperous than it is at present. New York State's wide variety of manufacturing and agricultural interests are, generally speaking, very prosperous. The same is true of New England, except for its textile centers. These communities are still going through the trying experience of adjusting large production capacity to a modest consumer demand.

The Old Question of the Pot Calling the Kettle Black

"A short time ago we cleaned and reset a Caloric pipeless furnace for a man that has always brought his work here before. When we sent him a statement for \$20, he immediately declared he would not pay such an exorbitant price for the work. He had another firm in town appraise the work and said they would have done it for \$12.

"Now we believe that \$20 is a thoroughly legitimate price for such distasteful work as resetting a furnace and would like to know the opinion of subscribers to AMERICAN ARTISAN."

The question is, was the first man high in his charge, or was the second man of a benevolent nature? What has been your experience?

Warm Air Provides Pleasant Atmosphere for Nuptials of Swedish King's Nephew and Miss Manville

Patio Enclosed and Successfully Heated with Four Large Warm Air Furnaces—One Located in Each Corner

IS THE warm air heating industry staging a comeback? In answering that query in the affirmative, let us say that so well is the adequacy of that type of system becoming known and so widespread is its superior merit becoming recognized that even a king's nephew finds it necessary to call upon the warm air heating system to insure his nuptial party against New York's wintry blasts.

Here's how it occurred: Coinci-

dent with the wedding of Count Folke Bernadotte of Visborg, nephew of the King of Sweden, to Miss Estelle R. Manville, daughter of Mr. and Mrs. H. Edward Manville, which took place in St. John's Episcopal Church, Pleasantville, December 1, 1928, another interesting epoch utilizing gas in connection with warm air heating will be written.

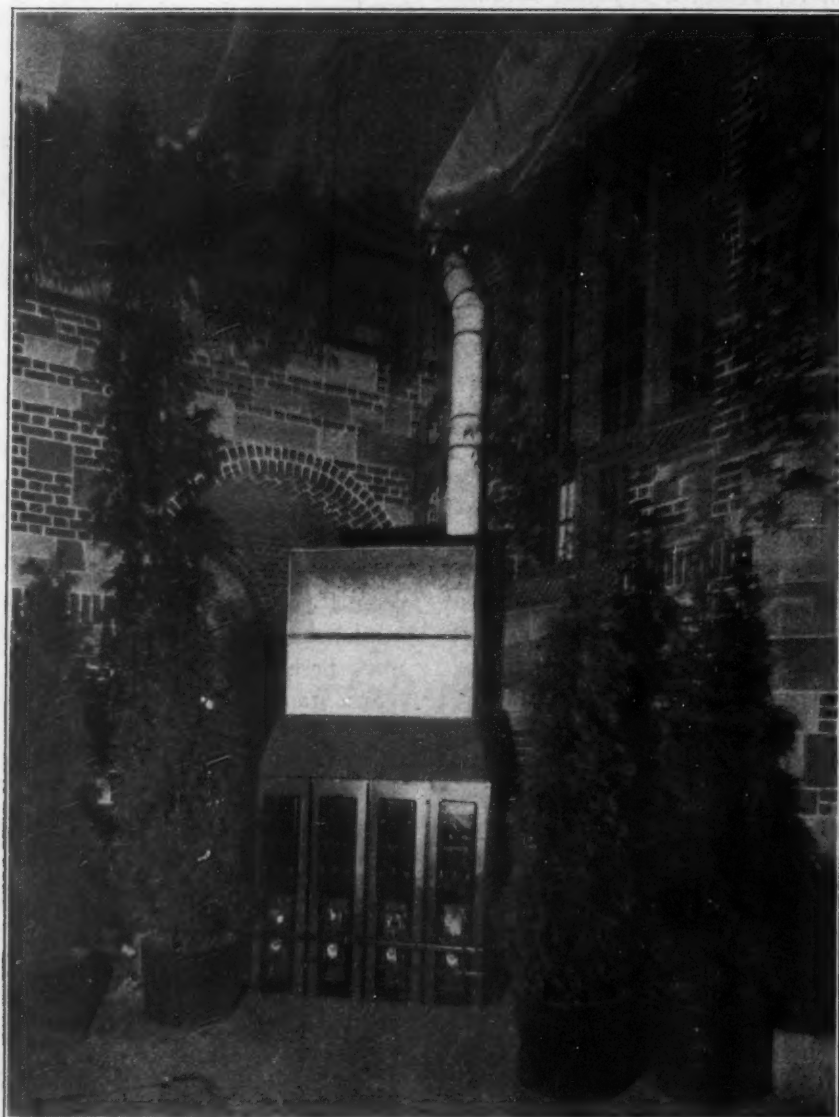
An artistic open inner court at Hi-Esmaro, the Manville estate on

Bedford Road, Pleasantville, was in one week transformed into an attractive and colorful interior. After the ceremony a reception was held there to approximately 1,000 guests. The spacious patio, enclosed temporarily, was heated by four large warm air gas furnaces—an accomplishment requiring great engineering skill and ingenuity and which is regarded by men in the warm air industry as unique.

When engaged as caterer for this brilliant nuptial event, Louis Sherry, Inc., of 300 Park Avenue, New York City, assumed the responsibility of converting the patio into a reception hall. Enclosing the open court with canvass was, of course, possible, but then the question of heating the area had to be considered. This was important because of the possibility of inclement weather.

J. E. Voit, general manager of Louis Sherry, Inc., after consulting with his engineers, decided that the utilization of gas would be the only practical solution of the heating problem under existing circumstances. Consequently Mr. Voit conferred with H. M. Brundage, Jr., assistant supervisor of house-heating of Westchester Lighting Company, and as a result the court was enclosed and adequately heated.

How this was done will doubtless prove interesting to the warm air heating industry at large. The patio is located between two wings of the Manville residence, which is a stone structure. The fourth side of the court is enclosed by a 14-foot stone wall. In converting the patio into an interior, a wood structure was erected similar to roof rafters in a frame house, projecting from the eaves of the dwelling proper to a peak about 40 feet from the ground. Canvas was fastened



Warm Air Furnace Installation Made on Estate of H. Edward Manville to Heat Portico During Wedding Ceremony



Showing the Setting of the Battery of Warm Air Furnaces on Estate of H. Edward Manville

to this structure for insulating and decorative purposes, and the fourth side was covered with canvas down to the top of the stone wall.

The entire enclosure was 75 feet long and 50 feet wide, and had a height of 40 feet in the center. About 1,400 square yards of canvas, weighing approximately 700 pounds, was used in this project. A large fountain in the center of the court was removed and in its place stood the wedding cake, 6 feet in diameter, 7 feet in height and weighing about 600 pounds. The cake was decorated by small manikins in attire similar to the Swedish royalty. Grass mats covered the flagstone and brick floor, and beautiful lighting fixtures were installed.

The big problem in the heating of this "tent" was to supply sufficient heat at ground level to counteract the 40-foot height and tremendous heat leakage through the roof. This was solved by locating a large warm air furnace in each of the four corners of the patio, through which warm air was blown in a horizontal direction at about 7 feet from the ground. Each of these furnaces was equipped with a fan to accelerate circulation of about

12,000 cubic feet of air-per minute, resulting in a room temperature of approximately 70 degrees Fahrenheit.

The gas required for the four furnaces amounted to about 3,000 cubic feet per hour, and it was necessary to operate the equipment for three days prior to the reception in order thoroughly to warm the masonry construction in the patio.

It might be stated at this juncture that after learning that the patio could be gas heated, Louis Sherry, Inc., asked the Westchester Lighting Company to designate the equipment required and see that it was properly installed. Thereupon this utility organization called in the Richardson & Boynton Co. V. A. Ely of the latter firm took charge of the installation of the furnaces.

The actual installing was done by J. B. Foster, Jr., of Mount Kisco, and under the supervision of the Richardson & Boynton Company and Westchester Lighting Company. In connection with the installation of the four furnaces in the patio one engineering feature of much interest developed. Two of the furnaces had to be placed on top of the wall and the only way of

getting them there was by means of a temporary derrick. Each furnace consisted of four cast iron sections weighing 750 pounds per section, so that in all three tons of cast iron were lifted 14 feet and then assembled on the wall.

When Mr. Manville saw that it was possible to heat the patio, he decided to have the barn on the estate similarly heated and to convert this building into dining quarters for police, chauffeurs and domestics. The barn is approximately 100 feet long, 30 feet wide and 10 feet high and is to be heated on Saturday by two warm air furnaces also equipped with blower systems and located in opposite ends of the structure. The gas consumption in the barn will amount to about 600 cubic feet per hour.

In making preparations for the reception, facilities for parking the guests' automobiles was not overlooked. A small race track on the estate was utilized and this was illuminated by electricity. A number of floodlights, some located in tree tops, threw their rays upon drives all over the property, outlining the routes to be taken by incoming and

(Continued on Page 68)

Here Is Evidently an Excellent Case of Unbalance in Installation

Lack of Circulation Causes Hot Basement Without Heating Rooms Above

THE following letter and the accompanying illustrations come from W. G. Jenkins, Wahoo, Nebraska, who is suffering from the old time honored ailment of lack of circulation because of unbalance of the system. He writes as follows:

"Two years ago I purchased a house in which was installed a warm air furnace. This furnace would not heat anything but the kitchen and bathroom.

I then had a carpenter cut in the 14 by 23-inch cold air register in the northwest corner of the living room, which did a little good, but

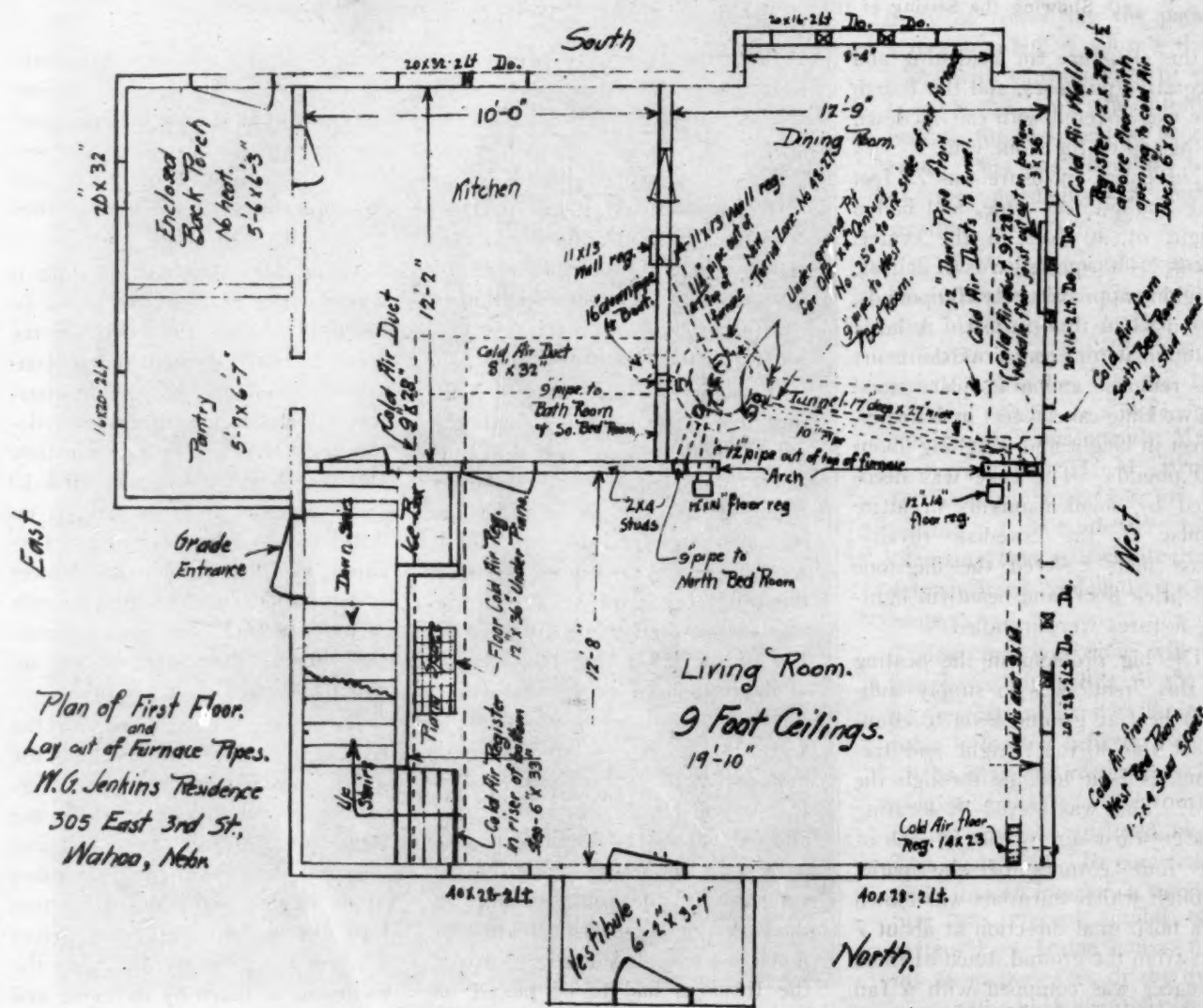
not a great deal. The furnace room would get very hot when I kept a hot fire.

"Then I had the 12-inch pipe that fed the dining room and kitchen wall registers changed to a 14-inch and had a larger register put into the wall between these rooms. This did not help a lot but seemed to cool off the kitchen and bathroom some and also the furnace room.

"Following this I had a cold air register put under the piano and had the cold air duct built and connected to the furnace through a 16-inch pipe and boot into the furnace.

All this failed to improve the working of the furnace to any great extent, but I did nothing more last winter.

"This fall I had a new warm air furnace of another make installed and a new 12 by 14-inch floor register with a 12-inch pipe to the furnace. This heats the downstairs satisfactorily but does not help the upstairs, and there is quite a noticeable draft from the stairway through the arch between the dining and living room to the cold air register in the west side of the dining room. The new 12-inch and 14-



inch pipes are cut into the top of the furnace jacket, which I understand is not the best way to install these pipes.

"Can you suggest anything that I may do to make this furnace heat the upstairs; there is a $\frac{3}{4}$ -inch space under all upstairs doors."

Sam Sorensen replies to Mr. Jenkins' furnace difficulty as follows:

In regards to your request for a solution of your furnace troubles through the AMERICAN ARTISAN I wish to state:

You have one of the best furnaces money can buy and is ample in size. I have installed personally about forty in the past three years and all are working 100 per cent perfect.

I have found through practical experience that it is not as efficient as it should be when coke is used as fuel, but with any other type of fuel they cannot be beat.

Your pipe areas are sufficient for heating also, excepting the location of the two second floor stacks being on outside walls. Unless you have them insulated they might give you some trouble if they become chilled, so if that happens, close other dampers until these pipes begin to heat.

I would suggest having a flat bonnet top built so you can take all heat pipes from top of furnace. Those you have there now are robbing the other ones. If you have not an inner lining in casing of furnace, I would have that put in also.

Your cold air system is entirely wrong. You can never make a job work successfully on gravity with an underground tunnel, because the strata of cold air is so heavy the heat of furnace circulating to rooms above cannot raise it.

I would place the cold air in archway of living room and drop right straight down to a furnace boot not over 11 inches in height at casing. Pipe to be 22 inches in diameter.

Good heating has taught us to place cold air registers as close to the furnace as possible, to overcome friction loss.

You can leave the 16-inch cold air return as it is, but change the large one. But I would shield the cold air boots to prevent warm air from getting into the boot and slowing up circulation.

After you have done as I suggest you will have no more trouble. The drafts over floors will disappear and you will save about one-third of your fuel.

If you don't quite understand what I mean, write me and I will be glad to explain each point more fully.

Your tunnel system would be all right if you were using a fan.

Yours truly,
SAM J. SORESEN,
1336 N. Central Ave.,
Chicago, Ill.

P. S.—Make the boot for 22-inch cold air 11 inches in height and 40 inches in width, and don't forget to shield it.

W. G. Clark Figures Layout for Bodell Job

W. G. Clark, warm air heating salesman, Chicago, has worked out a sketch of the installation of the Bodell job which appeared in AMERICAN ARTISAN a short time ago. Mr. Clark writes as follows:

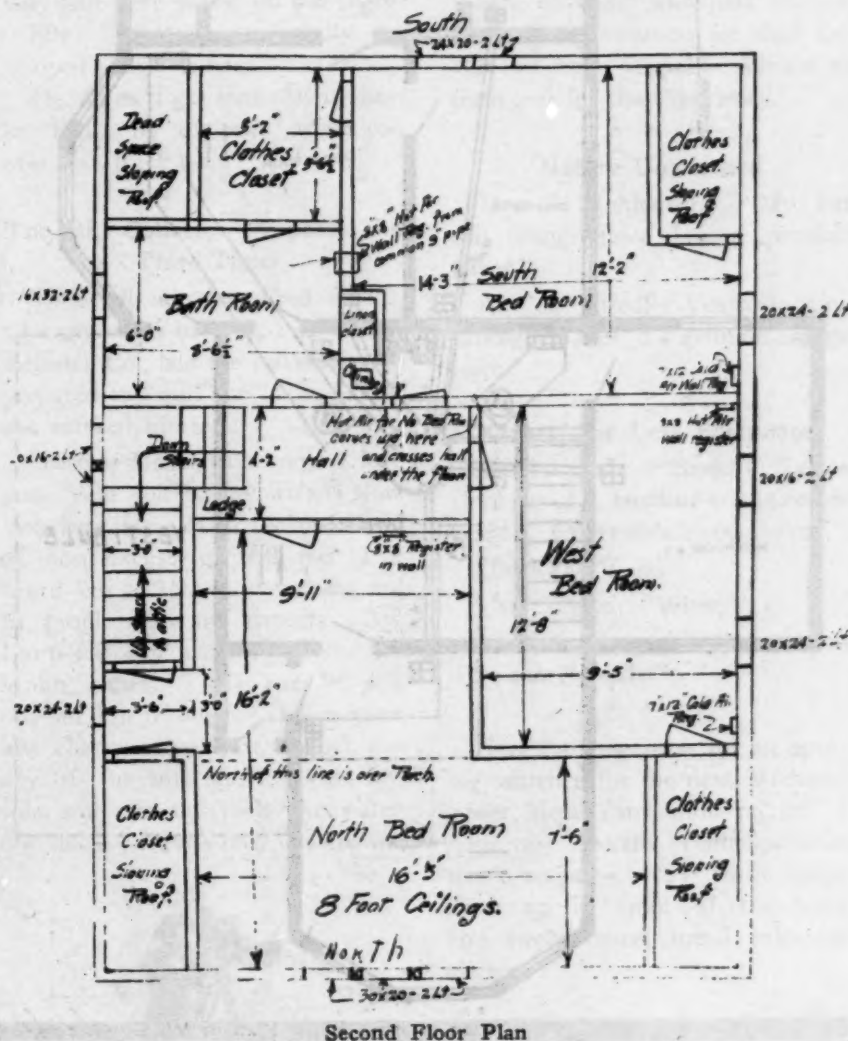
"The house faces west. Vestibule closed in.

"An old house might have flush sills, so I have outlined the floor registers. Changes to baseboard registers same location about.

"The joists run as marked on plan. If running north and south, change location of cold face in dining room.

"No stairs to basement under regular stairs.

"The cold air registers in walls might be connected with the new arrangement. A cold air face more than 8 or 10 inches above floor is not very effective.



"Bath room is so far away, this run might be started with a 10-in. pipe.

"The outline is a suggestion and would heat all right. If I were on the ground, I might suggest some changes.

"Cold air faces 14x26 or 12x30 if steel oak grain or black. If wood use 16x30. Heat requires a furnace of about 3 sq. ft. grate area or a 26 to 28-in. firepot. Chimney should be 12"x12".

Standard Code

Parlor 15x15x9

41x9= ... 369

3 windows 69÷ 12=5.7

Net wall.. 300÷ 60=5.0

Cu. ft. 15x

15x9 ... 2,025÷ 800=2.5

13.2x9=119

Add 15% N. W. ex..... 18

137

Add for cold floor 1/2x225÷

60x9 16

153

Living 16x19x9

10x9= ... 90

Glass 23÷ 12=2.0

67÷ 60=1.1

16x19x9 .. 2,736÷ 800=3.4

6.5x9= 59

Add 30% open stairs..... 18

77

Dining 15x15x9

21x9= ... 189

Glass 60÷ 12=5.0

Net wall.. 129÷ 60=2.1

Cu. ft 15x

15x9 ... 2,025÷ 800=2.5

9.6x9= 87

Bedroom No. 1, 12x15x9

39x9= ... 351

Glass 60÷ 12=5.0

291÷ 60=4.8

12x15x9 .. 1,620÷ 800=2.0

11.8x9=106

Add 15% ex..... 15

121

In figuring exposed wall used half when room was next to a cold room.

Bedroom No. 2, 9x15x9

17x9= ... 152

Glass 38÷ 12=3.2

115÷ 60=1.9

9x15x9 ... 1,215÷ 800=1.5

6.6x9= 59

Add 15% for N. exp..... 9

68

Bathroom 6x8x9

14x9=126

Glass 4÷ 12= .3

122÷ 60=2.0

6x8x9 432÷ 800= .6

2.9x9= 26

Add 15% for N. E. exp..... 4

30

Kitchen 8x14x9

18x9 162

Glass 56÷ 12=4.6

106÷ 60=1.8

8x14x9 1,008÷ 800=1.2

7.6x9

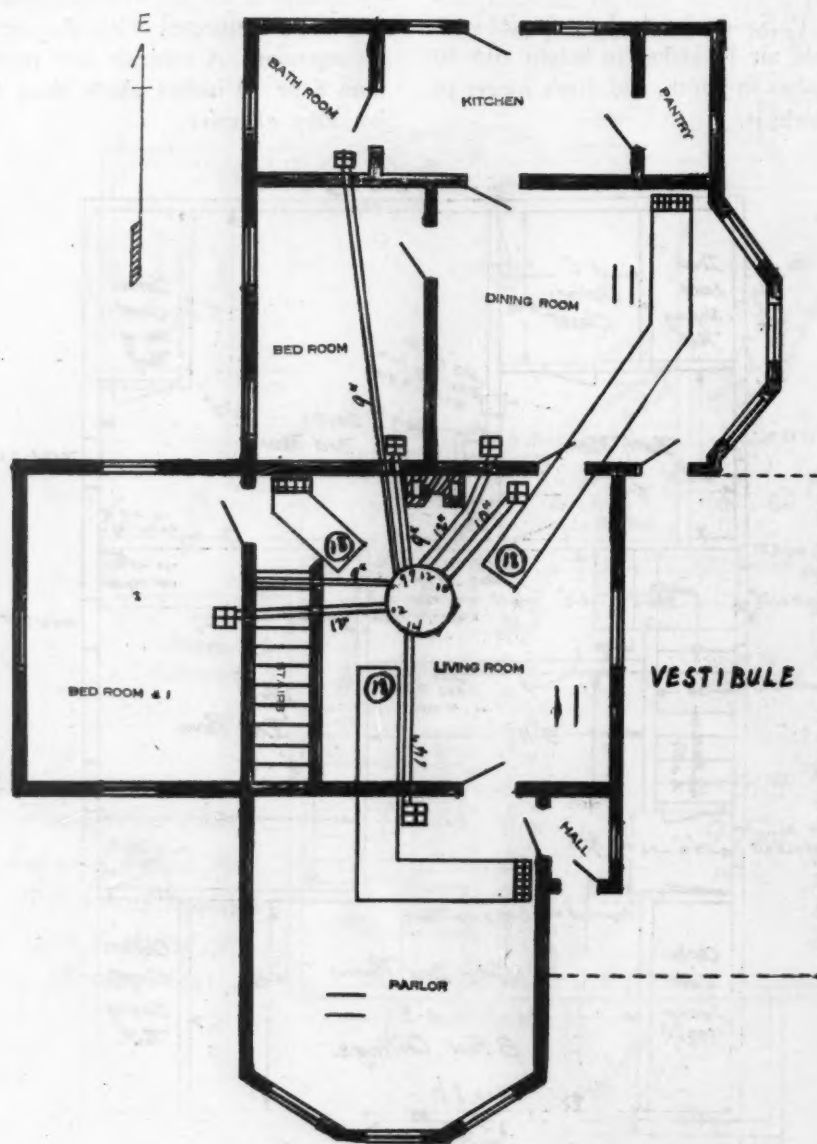
9

68.4

Floor

	Med.	Pipe	Capac'y	Register
Parlor	153	14"	154	14x16
Living ...	77	10"	78	10x12

(Continued on Page 68)



Mr. Clark's Plan for Bodell's Job

RANDOM NOTES AND SKETCHES

Here's one M. E. Ticen, XXth Century furnace distributor at Rockford, Illinois, sent in, with the following comment:

"Here's a dialogue which I heard the other morning at breakfast in a hotel dining room. It was a new slant on an old subject, so I'm passing it along to you.

"Mr. Goldberg, a Jewish salesman, was enjoying his ham and eggs when his friend Casey seated himself at the table.

"'Eating ham, Goldberg!' said Casey. 'Do you think that is the right thing for a man like you?'

"'Vell, I'll tell you,' said Goldberg. 'Ven Moses said you shouldn't eat pork, you must eat mutton, believe me, Moses had sheep to sell.'"

* * *

Among several visitors to our office this week were L. Max Baugh, sales representative of the Meyer Furnace Company, Peoria, Illinois; William Gunton of the Success Heater Manufacturing Company, Des Moines, Iowa; O. S. Mitchell, 405 Bellevue Avenue, Springfield, Ohio; William Skinner of the National Regulator Company, Chicago, also dropped in for a few moments' chat a week or so ago.

* * *

Probably a Magician

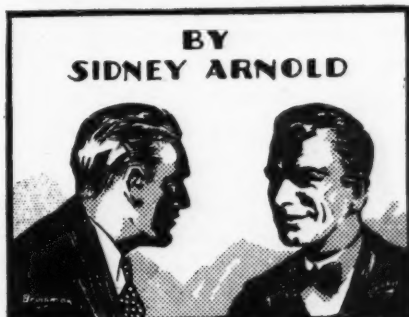
Charlie Glessner, who commutes daily, rushed into a grocery store and exclaimed: "Quick! Give me a bag of flour, a half dozen eggs, a pound of butter and a bottle of milk. I want to make a train."

* * *

Helpful Henry

Charlie Pearson of the U. S. Register Co., Battle Creek, Michigan: "Porter, I want to be called at 5 o'clock in the morning."

Porter: "Boss, Ah guess you-all isn't acquainted with these heah



mode'n 'nventions. See dis heah button, heah? Well, when you-all wants to be called, you jest presses dat button, an' we comes an' calls you."

* * *

Limbering-Up Exercises

They had just met at Atlantic City and were sitting on the beach.

She: "What a wonderfully developed arm you have."

He: "Yes, I got that playing basket ball. By the way, were you ever on a track team?"

* * *

The Bill Collector Proposes the Third Time

They tell me that Fred Heads, Chicago office of Hard & Cooley Register Co., had the following line prepared to "spill" on his wife had she refused him:

"Listen, Mabel, you know I love you. Will you be my wife? Now look here, lay offa that stuff. None of those excuses go with me. I've heard 'em all told in every way an' by people who are experts. An' I'm not trottin' around here for my health, either. Twice I've let you off, but I'm through. This is your last chance. No, you needn't try any of the soft stuff. Tears an' sobs roll offa my back like water offa duck. There's only one answer



I'll listen to, an' you might as well spill it now as later. I've got other things to do besides stand here an' argue.

"Well, how about it? Come on; I ain't got all day."

* * *

These Women

Kit: "I just got back from the beauty parlor. I was there three hours."

Kat: "Too bad that you stayed so long and then didn't get waited on."

* * *

Not This Generation.

"And now, children," said the school teacher, "since we've finished the lesson in public speaking for the benefit of those who may become transatlantic aviators, we shall devote an hour to public silence to train you for the Presidency."

* * *

Nature Unadorned

Mrs. Al Kahlenberg: "My, but this orange juice has a peculiar flavor."

Al, of Friedley-Voshardt Co., Chicago: "Yes, it's genuine orange juice."

* * *

One of the Less Fortunate

Mrs. E. C. ("Buck") Taylor (looking at husband's noticeable beard): "Why didn't you shave?"

"Buck": "I did."

Mrs. Taylor: "When?"

"Buck": "Just after you said you were nearly ready."

* * *

Here's a suggestion for an opening sentence for the next Michigan Sheet Metal convention report. I hope my worthy contemporaries won't adopt it: "A small coupe drew up in front of the hotel and twelve sheet metal salesmen alighted!"



Tower of Lord Baltimore Hotel, Baltimore, Maryland, Which Was Covered with Sheet Copper by W. A. Fingles, Inc., Baltimore.

IT IS a far cry from the landing of Lord Baltimore and his colony on March 25, 1634, and the opening of the new Lord Baltimore Hotel of the present day, which was opened to the public December 30, 1928, nevertheless there is an inspiration here for the sheet metal contractor who wants to get ahead.

It is a pretty safe conjecture that such luxury which makes up the appointment of the modern hotel of today was unknown to even the wealthy classes in the time of Lord Baltimore, and in the luxury of appointment the Lord Baltimore is no exception.

Without doubt this building is the last word in scientific equipment, architectural construction, built of brick, concrete, steel and stone and fireproof throughout. Every modern detail has been installed in order to give the guests absolute comfort and safety.

Above the main roof is the tower, which contains five floors devoted to the various service departments of the hotel. Atop of this tower will be a vertical revolving searchlight of 3,000,000 candlepower. This light will be the air mail beacon for Baltimore and has been accepted as

such by the United States Department of Commerce at Washington. There also will be a horizontal light pointing directly to the nearest government airplane landing field.

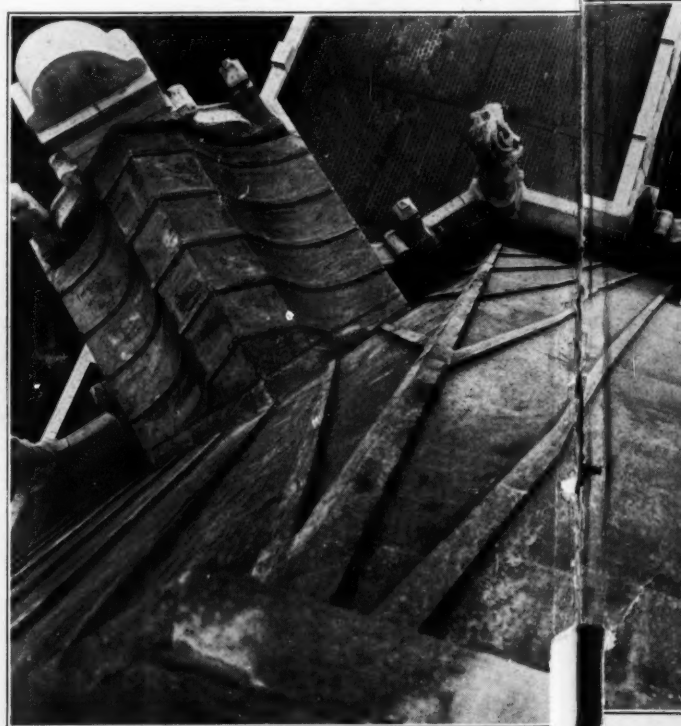
From the tower little is left to the imagination of the person seeking a panoramic view of Baltimore and the surrounding territory. The city's famous harbor and far down the Patapsco river is brought before the eyes and to the north and west can be seen to excellent advantage the beautiful hilly and rolling country, with its many attractive waterways, which has made this section of Maryland so famous.

The Sheet Metal Work.

But what has all this to do with the sheet metal industry and the sheet metal contractor? Just this: To the sheet metal contractor or the sheet metal worker who is desirous of knowing whether or not he can find opportunity sufficient in the industry to utilize all of his talents and ambition, let it be said that a sheet metal contracting firm had a great deal to do with making the Lord Baltimore Hotel the show place that it is today.

In the accompanying three illustrations there are shown three views

of the copper roof of this magnificent hotel, upon which approximately ten tons of copper in various forms was used. The flashings in connection with the tile roofs, rib and cap roofing on the tower, the ornamental balustrades, posts, marquise work, etc.



View of Lord Baltimore Hotel Tower Roof Looking Down from the Top of Salm...
duced Artificially by a Solution

COPE
N
Ad
anc

COPPER ROOF AND MARQUISES

Adorn Baltimore's Newest and Most Beautiful Hostelry

BY GEORGE DUERR

All the sheet work, roofing and waterproofing material of every description in connection with the exterior was handled by W. A. Fingles, Inc., 29 Howard Street, Baltimore.

Twelve tons of copper were used on the exterior in connection with

the sheet metal work. This material was employed in various forms, such as the roof of the tower, which is put on rib and cap style, and paneled balustrades and other ornamental work; roofs are flashed with the same material; marquises at the entrances to hotel on Baltimore and Hanover streets sides are covered with copper, panels being formed on the under side of same.

W. A. Fingles also handled the installation of roofing and waterproofing, as follows: waterproofing of granite base intersecting the sidewalks on both Baltimore and Hanover streets, showers and laundry rooms on the eighteenth floor; granite base received two plies of tarred felt and one layer of eight-ounce burlap, showers five plies of tarred felt, and sidewalks and laundry rooms four plies of tarred felt and one layer of eight-ounce burlap; second floor, east side, roof and flat portion at base of tower received a Barrett Specification Twenty-Year Surety Bond roof.

Eighteenth floor level roofs first received built-up membrane waterproofing, consisting of four plies of felt, after which 6x9x1-inch roofing tile laid in asphalt mastic were ap-

plied, the joints grouted with cement mortar and asphalt expansion strips.

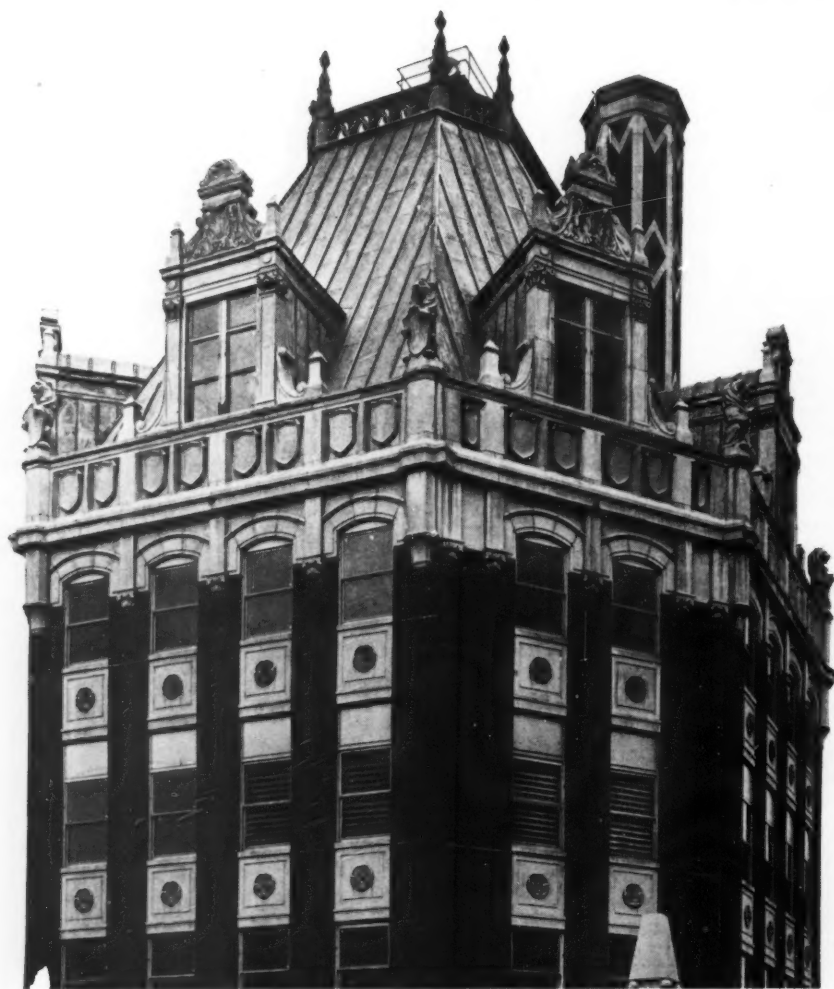
Specifications also covered all the sheet metal work, roofing and waterproofing of every description in connection with the exterior of the building. Sheet metal work is a little different from most of the other trades, inasmuch as materials cannot be bought already manufactured, but must be purchased in their raw state and fabricated.

Commenting on the job, W. A. Fingles, Jr., vice-president of the company, stated: "On the close-up view taken from the tower looking down on the copper roof, you will notice that this roof is discolored somewhat. This is due to a solution of powdered salmuniac in the water which was applied on the copper by the company to turn the roof petina colored."

This is indeed a job which W. A. Fingles, Inc., can be justly proud. It is a show place in a city which entertains thousands upon thousands of visitors every year, and to be connected in any way with such a wonderful engineering project must be a source of constant satisfaction.



Looking Down from the Top, Showing Discoloration Produced by Solution of Salmuniac in Water



Another View of the Lord Baltimore Hotel Tower Showing the Copper Roof and the Aeroplane Beacon. This Hotel Will Be Used by the National Association of Sheet Metal Contractors for Their Convention in June.

The Ventilating System.

The ventilating system consists of eight large fans and several smaller disc fans. The large fans are the general supply, general exhaust, public space supply, public space exhaust, convention hall exhaust, range hood exhaust and bath room exhaust.

The supply ventilating systems have a combined capacity of about 40,000 cubic feet of air per minute, and the exhaust ventilating systems have a combined capacity of about 80,000 cubic feet of air per minute, not including the convention hall ventilation.

The convention hall supply ventilating system has a capacity of about 20,000 cubic feet of air per minute, and the same exhaust capacity.

The air in some of the various rooms throughout the building is

completely changed in the following periods of time:

Cafeteria, every 3 minutes; cafeteria kitchen, every 2 $\frac{2}{5}$ minutes; barber shop, every 3 minutes; public toilets, every 6 minutes; main kitchen, every 3 $\frac{1}{2}$ minutes, and various other rooms have complete air changes in from 6 minutes to 20 minutes.

The convention hall has a complete air change every 4 minutes when the mechanical ventilating systems are in operation. The entire installation is of the most modern type, designed by expert engineers well versed in the requirements and needs of a hotel of this size and character.

Perhaps a greater interest will manifest itself in this job on the part of the reader when it is learned that this hotel will be used next June when the National Associa-

tion of Sheet Metal Contractors of the United States goes to Baltimore to hold its convention. It should also be noted here that the president of the company that did the sheet metal work on this magnificent hotel, W. A. Fingles, Sr., is the same W. A. Fingles who is general chairman of the convention committee. He is one of the outstanding factors in the Baltimore Sheet Metal Contractors' Association and has for many years taken an active interest in the affairs of the National Sheet Metal Contractors' Association.

After seeing a job of this kind, is there a sheet metal contractor who would not be inspired to so employ his talents that he, too, could take jobs of this kind?

Fred Goodall Goes with Colburn Heater Co.

Fred Goodall, formerly with the G. & S. Stove & Furnace Company, 4224 West North Avenue, Chicago,



Fred Goodall

has gone with the Colburn Heater Company, also of Chicago.

Mr. Goodall, who is the secretary of the Greater Chicago Warm Air Heating Association, is well known in the warm air heating industry in and about Chicago. He is thoroughly conversant with all phases of the warm air heating industry and will prove himself a valuable addition to the personnel of the Colburn Heater Company.

Estimating the Necessary Quantities of Material for Any Given Size Roof

Where the Covering Is of Sheet Metal in Any of Its Forms

By J. E. ALLSTEADT*

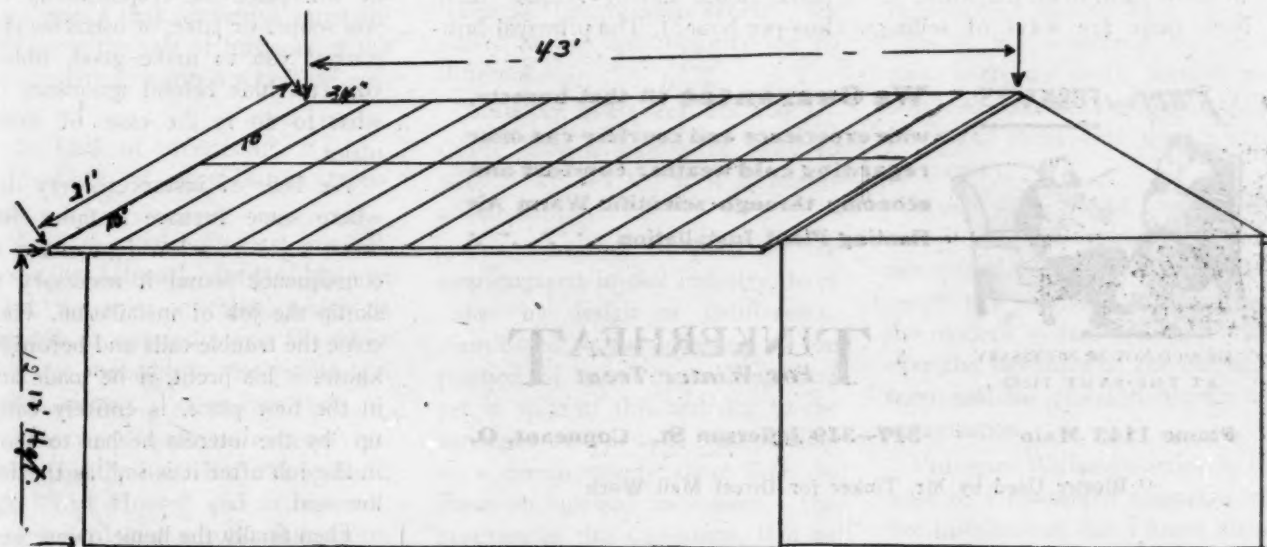
THE ABILITY accurately to estimate the proper amounts of materials for the many and varied building operations that he comes in contact with is one of the necessary accomplishments of the contractor or estimator. Inability to do this, which results in not figuring enough

lay to the weather. Right here is where so many estimators fail to allow for the extra material needed for side and end seams, and also fail to take into consideration the standard stock lengths of roofing and siding available.

The length of roof being 43 feet,

43 feet.

Since it requires 146 square feet of extra material for laps, or side and end seams for one-half the roof, the total roof would require 292 square feet for laps or seams, or approximately 14 per cent. This will apply to any corrugated roof



Illustrating Method of Figuring Sheet Metal Roof Requirements

material in his estimate, has been the cause of heavy loss financially for many a contractor.

We will take for our problem for discussion a building of small dimensions, with particular reference to one side of the roof, which is 21 feet in length of rafter with eaves by 43 feet long. Readers who are acquainted with roofing materials will readily understand that the first step is to find the number of square feet of roof surface to be covered. So, 21 feet multiplied by 43 feet gives you 903 square feet.

Now the contract calls for a standard corrugated roofing, which is 26 inches wide. Allowing 2 inches for lap, we have left 24 inches to

it will take 22 sheets laid side by side to reach across. The length of rafter, including eaves, is 21 feet. So it will be necessary to use two different length sheets in order to make the necessary lap at the end of sheets with the least waste. As it is most economical to use standard stock sheets, we will use a 10-foot sheet, and 12-foot sheet, which will have sufficient lap to turn water on an ordinary roof.

It will therefore require 22 sheets, 26 by 120 inches, with $21\frac{3}{4}$ square feet per sheet, or 477 square feet; 22 sheets, 26 by 144 inches, with 26 square feet per sheet, or 572 square feet; making a total of 1,049 square feet necessary to cover the 903 square feet of surface contained in our problem, which is one side of the roof of a building, 21 feet by

covering and any and all styles of roofs, except that for a roof with hips and valleys the percentage allowed for seams and waste would have to be greater. However, that is another problem for later discussion.

If nails and lead washers are required to fasten this roof covering, the usual amount required is: $\frac{1}{2}$ inch barbed roofing nails, $1\frac{1}{2}$ pounds per 100 square feet of surface, $\frac{3}{16}$ inch lead washers, $\frac{1}{2}$ pound per 100 square feet of surface. However, the amount used is optional and may be varied to meet any particular requirements.

Whether the roof covering be of pressed tile, corrugated or flat sheets, standing seam, or whatever the material, the estimator must keep in mind the extra material

*Factory superintendent, Hastings Equity Grain Bin Manufacturing Company, Hastings, Nebraska.

Too Many Furnace Installers Still Think Cutting Price Is Best Way to Fame

A. C. Tinker, Conneaut, Ohio, Gives Example of How Price Cutter Loses in the End

THERE are today in the warm air heating industry still too many installers who think that they must cut prices to get any work at all. Their entire front line of defense when the customer seems to demur a little is that they can reduce the price of their installation and thus encourage the home owner to allow them to do the work.

Now there are ways of selling

caused so much difference between the temperature of the rooms, and the uncomfortable, cold drafts on the floor.

"The owner said the people who had made the original installation were willing to change it if they knew what to do (how could they afford to with the price of \$300 for plant, house having 70,320 B.t.u. loss per hour?). The principal busi-

ness of the original installer is roofing. The owner said the people who had made the original installation were willing to change it if they knew what to do (how could they afford to with the price of \$300 for plant, house having 70,320 B.t.u. loss per hour?). The principal business of the original installer is roofing.

Then finally the home owner gets disgusted and thinks perhaps maybe he had better go and see the fellow who told him in the first place that he would do the job right. He does and the job is remodelled at the second contractor's own figure. The first installer is out of luck so far as that owner is concerned.

Now wouldn't it be much easier for the first installer to sit down and figure out how much his running expenses are in the first place and then refuse to take a job that would not net him sufficient to clear all expenses on that job after a good, thorough, workable installation had been made? That is the only sound way to make a business grow and we hope to see more furnace installers turning to that way of doing business in the future. Mr. Tinker has the right idea, and many other furnace installers are finding it out as well.



SHOULD NOT BE NECESSARY
AT THE SAME TIME

We Guarantee all that honesty, wide experience and courtesy can offer regarding cold weather comfort and economy through scientific Warm Air Heating Plant Installation

TINKERHEAT
For Winter Treat

Phone 1143 Main

317-319 Jefferson St. Conneaut, O.

Blotter Used by Mr. Tinker for Direct Mail Work

warm air heating on other than the purely price basis, and it is no harder to employ some of these methods than it is to take work at too low a figure. The following is a case in point. It came from our old friend, A. C. Tinker, of the Liberty Specialty Company, 317 Jefferson Street, Conneaut, Ohio, who has so engrafted himself into the hearts of his public that they don't even call him by his first name anymore. They call him Tinkerheat, and as Tinkerheat he is known to all of the populace of Conneaut.

His letter shows his attitude toward this proposition of always trying to beat the other fellow's price. He writes as follows:

"On the 13th, shortly after return from the Buffalo convention, I had a call from the owner of a house which requested that I make a 'Heat Survey' to determine what

ness of the original installer is roofing.

"This house was just finished the past summer. We made a plan and check of heat loss, with ceiling, breathing line, floor and register temperature of each room at 30 degrees out of doors.

"At this writing we are rebuilding the plant for more comfortable heating.

"This quite clearly shows how far the dealer (or heating engineer of the future) is behind the dealer who is installing just furnaces without assuming any responsibility or 'Dealer's Liability' for the successful operation of the plant, using guessing and the shortest path to the dollar without regard to trend of public toward that which serves in the best manner.

"We did not attempt to sell the first installation, as we are endeavoring to carry out a policy of competing only on the quality of the service-rendering basis. If we find price is the only issue, we recommend that the customer take advantage of it at once and pass the time of day. We leave the customer to the mercy of the price man and seek other fields, knowing that the public will place the responsibility on you sooner or later, or ostracize and compel you to make good, unless you can hide behind ignorance of what to do in the case of complaint."

Must Tell Message of Warm Air to Public and Repeat It Often

Greater Demand for Warm Air Heating Systems Will Come with Public Education

By BENJAMIN F. JOHN

THE article appearing some time ago in *AMERICAN ARTISAN* by George J. Duerr, Editor, "*The Warm Air Furnace Installer's Opportunity*" invites constructive criticism and new ideas. It is timely, should prove helpful, and should be reprinted in a later issue.

In my humble opinion there are two things that prevent a rapid increase in the sale of furnaces or the recirculating warm air heating system:

- 1—Lack of advertising.
- 2—Lack of organization methods.

1—The article in your July 7th issue, by Alfred L. Jordan, hits one vital necessity of that which is needed in our industry. We must tell our message to the public and tell it oftener. Let us face facts.

The work and the expense entailed by the manufacturer to build the "Test House" and in research, had indeed laid a solid foundation upon which to build a great industry; yet how many of the ultimate users and owners of a heating system know much if anything about it?

It is against proven results obtained, for our industry to assume that the public are not concerned or interested in semi-technical or even purely technical data concerning the article they purchase. It is a common occurrence that we listen to the owner of an oil burner discuss revolution of the motor; mercoind thermostatic control; air passage and spark ignition, and what not about the burner he has in his basement and its improvements over the initial burner that was placed on the market, as well as its superiority over the Jones or Smith burners. This information is derived from the printed page in his newspaper and

magazine, and augmented by salesmen, who are trained not to assume that the major part of the public are ignorant or don't care to know. This is true as well, concerning household refrigerators and other appliances and modern improvements. Just let us ask ourselves, what we learned and asked for, when we bought such articles; the public in the vast majority are no different.

Industry Must Tell Its Story

We have a wonderful story to tell. Why not tell it if it means added business?

For a number of years all the men engaged in our industry, have either by design or indifference, contributed to the lowering of the position of warm air heating, and yet in spite of this and due to the foresight of a few, it was possible in a comparatively short time, to show an upward movement. The progress of this movement, if it be slow or rapid, will depend entirely upon the interest awakened in larger and larger numbers of the public, through advertising, if this advertising is based on the solid foundation we possess.

The warm air heating system is a universal public need and the industry as a whole is a public utility; the product, furnaces and equipment, is as important as any other national product, and to sell it in larger volume, a larger demand must be created, to create this larger demand we must make the public understand its scientific principles and proper construction; in fact, all about it, just the same as any other national product is marketed. The more we tell it, the better the sale.

Whether we like to admit it or not, the fact remains that the public generally has a prejudice against

warm air heating and largely due to past experience with badly installed jobs. Yet when they are questioned, many will readily admit they prefer it if it did not throw dust and dirt; would give enough heat, and would not take up so much room. That is the reaction we receive at the start, when we explain a warm air recirculating system to a prospect. This is the resistance the dealer must overcome single handed with only the circulars of the manufacturer and these only speak of the furnace.

Would there not be a vast difference if the prospect could see in his newspaper and magazine, the exact results that should be expected from the modern system and why? This over the signature of the manufacturer and his research bureau and organization.

Professor Williard's article in one issue of a household magazine sold five installations that I know about. Professor Day's red booklet is a great salesman, and the prospect will read it and understand it. It's new, it's modern, and the remark, "I never thought of 'hot air' in that way," was the comment, and the job was sold.

Much Education Required

The builder is being educated as to the superiority of our system, and some fully appreciate it, but the resistance in the minds of the home purchaser, in his preference for hot water and its superiority, as he knows it, prevent the builder from using our system to any extent, as well as the fact that he can obtain several hundred dollars more for a house heated with hot water over that of "hot air."

The "hot air" system is known to everybody, and in the mind of the average person that term covers all

heating through a furnace, and that impression will only be overcome, by hard work and generous advertising.

Most of us know the facts regarding a properly installed warm air recirculating system—that proper humidification and healthy atmosphere in doors can only be obtained through it; that it can be made dust proof, even more dust proof and less destructive than any hot water or steam system; gives quick, clean heat; no danger when forgotten, and is in greater use in the Northwest because of this feature. That it can be installed in new houses and some old houses and allow the entire use of the basement. That it can be made a cooling system in summer, as well as a heating system in winter. Its economy in fuel consumption is greater than any other known system. It is suitable for burning any kind of fuel, and it will outlive, under severe treatment, with full service, any other system, yet the public on whose money we do business in the vast majority do not know this or that the scientific rules of heating prove it. But a large number still believe that the heat is generated direct from the open burning coal fire in the fire pot, and consequently the dust and dirt and imagine by some trick that we are able to prevent the coal gas from entering the house, but the dust and dirt we cannot stop. Ask some friend of your family their opinion.

The "hot air" heater is old-fashioned heat, and that covers the entire situation in many minds today. It's the new; the modern; the advanced; scientific and automatic that intrigues the mind today, and we have it, but it is not known. The old comparison must be killed and there is only one way to do it.

Of course it is a big job and it is going to cost a lot of money, in the same manner that it cost the oil burner manufacturers, after their first "fizzle," but they spent it, knowing they had a product, and recreated a favorable impression on the public mind and an ever-widening market, and are still spending money to block off the entrance of

gas as a fuel for home heating. They are making money. Some of these men are refusing to install a burner in a faulty system, and go so far as to measure the house and recommend changes in the system, a new furnace or boiler and a new chimney perhaps, which means almost double the expense and in some cases more, and it is done, and the expense met. Why?

Simply because the manufacturer is back of it, and his wide spread advertising has convinced the home owner that he cannot do without the modern, automatic and labor saving device.

The manufacturer clears the way; makes oil burning known and guides the dealer. Take any nationally known product, is it not the same?

Why most of the big businesses compel the dealer to sell his product by creating a demand the dealer cannot afford to ignore, and is it not a fact that until a short time ago the furnace manufacturer was about the only manufacturer of a nationally known product that did not interest himself, except in a casual way, in the ultimate use or user of his product? Look it up.

Is our product in any way inferior to other national products? Don't we believe in them to the extent that it is worth telling about? Have we anything to tell? We have tried every other way of creating a greater demand. Now let's try the right one.

Naturally the pertinent question arises. How is this expense for a wide and continuous campaign to be met?

The advertising budgets of several manufacturers if added together would, without question, make a very large sum of money. How much of it is misdirected. In fact thrown away.

The amount of mail advertising sent out is tremendous. Letters, circulars illustrated dodgers and every conceivable form of advertising enters the offices and shops of all the trade almost daily, and one dealer receives these from ten to twenty manufacturers almost daily, depend-

ing upon locality, and the major part of them find a resting place in the waste paper basket or in the paper junk heap, and for the sole purpose of selling the dealer a furnace or special equipment. Is this not a duplication of effort?

An industry such as ours, where the invested capital for the manufacturing of furnaces and equipment runs into a billion dollars or more and where it is said that the return is so small that a decent profit can hardly be made on invested capital, certainly must realize that a greater demand must be created, and that the present manner of advertising must be wrong and more advertising should be directed to the user.

A few years back we can remember the purely heating shop. Now almost without exception we have a general shop, and that power is lost. The market grew narrower, yet the country and the demand for heat has grown larger. The furnace manufacturer made furnaces, now he has side lines.

Will such advertising increase the demand. All we have to do is to examine the advertising campaigns of the Holland Furnace Co., as far as definite sales were obtained. That advertising campaign increased the business of the dealers in the neighborhood where it was published in the newspapers. They advertised the New System. It sold the system and not the furnace and it told all about it.

This too can be proven by the manufacturers who sell heating systems and install them in their home territory.

A national advertising campaign of large scope and continuous can do even better, if the exact knowledge we possess is told often and interestingly as well as pictorially, and will increase the demand unbelievably.

If five manufacturers would combine their budgets for advertising for one year, and not add a single dollar, and direct it to a restricted territory; explain scientifically and pictorially the advantage of the new recirculating warm air heat-

ing system in periodicals and newspapers, it would give the proof, without any additional expense.

It is Greater Demand We Are After

The effect of association work, nationally and locally, as well as the work of individuals, and the trade press have been of immense value to the dealer who reads and listens, but where is the demand? We admit it is not enough to go around, and as long as the manufacturer persists in the idea that the dealer is responsible for creating the demand and the advertising medium to his customers, the public, there will be but slow progress.

It is not stretching the truth to say that but a small proportion of the dealers today understand clearly the real facts about the recirculating system, simply because the demand does not make the incentive to learn, and some frankly state in rebuttal that there is but a small demand, and attention to obtaining other kind of work, and as a result these cannot tell their customer when the chance does come.

Our competitors the steam and hot water heating folks are now alive to the possibility of the inroads that our system will make if it be made known prominently, and just now in one restricted district have raised \$60,000 for an advertising campaign in the newspapers. Two issues are out and the last half page presents a picture of a man kicking over a furnace and the description tells the owner to look into his basement and note the old contraption that is out of date, and install a modern up to date mechanically governed and automatic hot water system that will heat the rooms evenly and with little fuel, etc. The money is being raised by assessing the dealer organization \$1 a month and the great bulk being subscribed by the manufacturer. It is an educational campaign and the public is told to ask for the man who has the symbol on his door or window. And make no mistake about it, it is doing the trick, and some of our dealers are cashing in on the advertising, but against odds.

And again a large, if not the largest manufacturer of boilers and radiation in the country, is rapidly corraling the dealers; helping them with inquiries; measuring the house; sell the jobs and even submitting three sets of figures through various sources, with the winner picked out. They know the danger if the warm air people ever wake up.

At the convention of the New York State Press in July, 1928, Earl C. Sams, president of a chain of stores said: "Aggressive advertising is necessary to gain the public confidence in buying. It is interesting to note that some of the country's best known enterprises have adopted an ever enlarging advertising campaign in the maintenance of their business. I confidently expect to see added to this list many of the more conservative organizations which formerly depended solely upon the users of their product to advertise for them."

2—Lack of Organization Methods

The National Warm Air Heating Association and all local associations who are doing any work in discussing and instructing in the science of heating and its installation, and all others who are helping are doing a fine work, which will show itself in time by producing men who will be able to blaze a trail, but these are few and far between.

The engineer whose search for the truth will feel rewarded and gratified that he will be able to hand his work to such men who will use his work and knowledge gained.

The consolidation of the association of furnace manufacturers into one organization is a very important step. The solicitation of dealer membership is another.

Still we lack the co-ordination of effort. The major portion of the dealers do not get or will not understand the information that is required.

Each existing organization accepts a number of diversified opinions, advanced as correct in each of its sessions, and it is only possible to ex-

cite an interest at these meetings, simply because it requires constant study and application to master the science and the installation of a real warm air heating system, and this cannot be done in spasmodic relatively short sessions, where other subjects claim attention. A great many dealers even now assume that this is very interesting, of course, and still believe that the recirculating warm air heating system is merely the old "hot air" system "dressed up" with return air ducts, and that the Standard Code will work a miracle, if carried in the coat pocket. How many will use the Standard Code? How many can use it without instruction? How many will use the Standard Code estimating blank without instruction? Just ask the next man you meet, who has not studied the Code, what he knows about it. I have, and many have an alibi.

Suppose a central organization of manufacturers prepared an authentic definite and simplified study, from the sources we possess. Send out trained men just as salesmen to tell how to study; to appear before meetings; visit the individual; correct wrong impressions, and finally create a conclusion in the minds of the dealers; contractors and builders and even consumers of the new and vital method of the protective health heating system of the future. The individual company that tried it, merely scratched the surface, but what could be done by a powerful organization that had faith in its product?

What Other Associations Are Doing

The National Association of Cement Manufacturers is a concrete example. It has not been but a few years ago that overproduction was nearly an every-year complaint with them, and nearly all the mills shut down in the winter until spring. Low prices at the mill and cut throat methods.

Today it is said that that industry has become the barometer of business, instead of as formerly the steel industry, and all this was accomplished through research; stand-

outgoing cars. Guests' cars were driven up to the front door and then aridization and education through advertising as a national association.

Miles and miles of concrete roads were laid for test purposes. Trained men were and are being sent out to educate the dealer to make tests, and instruct the dealer, and act with inspector of borough, town and municipality, to search for new uses of cement, as well as prevent improper construction no matter whose cement was used.

This is being done now at great expense, and for some years now the association has spent between three and four million dollars annually; and does it pay?

Just look at the price of the stock of the cement companies now and compare them with fifteen years ago. As one president of a large cement company recently stated in speaking about their association: "It pays big dividends. We would never have gotten anywhere without it."

Why did the mills form the Sheet Steel Trade Extension Committee, and spend the amount of money they do? To educate the public through national advertising and personal visitation for an extension of the market for sheet steel, or they would have faced over-production and closed mills.

Association work did it.

Then there must be: First, a larger demand created and simultaneously.

Second, an educational system evolved through greater and more compact association work.

BODELL INSTALLATION

(Concluded from Page 58)

Dining ...	87	12"	113	12x14
Bed No. 1.	121	12"	113	12x14
Bed No. 2.	68	9"	63	9x12
Bath	30	9"	63	9x12
Kitchen ..	68	No. H.	0	

	536		584
Up	50	9"	63 No change

	586		647
Warm air...3/95 1/105 2/125 1/14=	647		
Cold air....3/18			=762

Cold air faces, 14x26 or 12x30. Oak gr. steel if wood, 16x30.

Cold air boxes, 9x30 inside or larger.

Illinois Sheet Metal Contractors to Hold District Meeting at Peru

The Peru district meeting of the Sheet Metal Contractors' Association of Illinois, Northern district, including Chicago, Aurora, Galesburg, Abingdon, Ottawa, La Salle, Wood River, Dixon and Kankakee, will be held at Peru, Illinois, January 17, 1929, 5 p. m., at the Chamber of Commerce rooms.

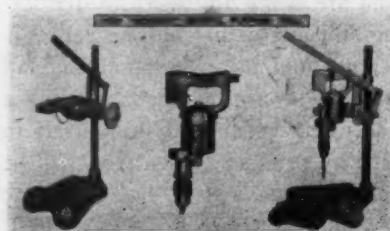
Salesman of the auxiliary members are also cordially invited.

All persons who intend to be present are to notify Charles Radtke, 1049 E. Eighth Street, La Salle, Illinois, on or before January 14, 1929.

Wodack Has New General Purpose Tool

Among the new tool designs to make their appearance is an electric portable drill of $\frac{3}{8}$ -inch size, recently brought out by the Wodack Electric Tool Corporation, 4627-29 West Huron Street, Chicago.

The new drill, according to the estimation of the manufacturers, is of exceptionally light weight, yet



Illustrating the Tool.

well powered and is particularly adapted to general repair work.

Experience over a number of years has shown that 90 per cent of the holes drilled in such work are $\frac{3}{8}$ inch or less. Also in many cases there is need for a tool to do odd grinding and buffing jobs. This latest type drill, known as the Wodack general purpose tool, is designed to meet these requirements.

Its light weight—7½ pounds—will appeal to the mechanic. Even in a small shop this saving in energy required by the mechanic to carry it around will be found to be considerable during the year.

This new tool is powered with a

General Electric universal motor of the latest variable speed type, controlled by a trigger switch or 100 per cent oversize. In addition to doing the work of drilling, the tool can be used for such odd jobs as grinding and buffing, which further increases its utility. A stand for holding the tool vertically can also be furnished with the equipment.

Full information concerning this new handy tool can be had by writing the Wodack Electric Tool Corporation at the address given above.

WARM AIR PROVIDES

(Concluded from page 55)

the chauffeurs were directed by police to the parking area where they could be located by a special telephone service when needed. Guests who operated their own machines left them in a separate parking space adjacent to the house.



Indiana Sheet Metal and Warm Air Heating Contractors' Association, Indianapolis, Indiana, January 22, 23, 24, 1929. Executive Secretary, Paul R. Jordan, 631 South Delaware Street, Indianapolis.

Missouri Sheet Metal Contractors' Association, Hotel Statler, St. Louis, Missouri, January 22 and 23, 1929. Secretary, W. A. Wiedenmann, Kansas City, Missouri.

Wisconsin Sheet Metal Contractors' Association, Milwaukee, Wisconsin, February 4 and 5, 1929. Secretary W. A. Belau, 317 McKinley Avenue, Milwaukee, Wisconsin.

Ohio Sheet Metal Contractors' Association, Columbus, Ohio, February 12, 13, 14, 1929. Arthur P. Lamneck, W. E. Lamneck Company, Columbus, Ohio, Chairman convention committee.

Michigan Sheet Metal & Roofing Contractors' Association, Flint, Michigan, March 5, 6, 7, 1929. Frank Ederle, 1121 Franklin Street, S. E., Grand Rapids, Michigan, Secretary.

Pennsylvania Sheet Metal Contractors' Association, Lancaster, Pennsylvania, Hotel Brunswick, March 26, 27 and 28, 1929. Secretary W. F. Angermeyer, 7253 Frankstown Avenue, Pittsburgh, Pennsylvania.

National Warm Air Heating Association annual meeting, Claypool Hotel, Indianapolis, April 9, 10, 11, 1929. Secretary Allen W. Williams, 174 East Long Avenue, Columbus, Ohio.

Illinois Sheet Metal Contractors' Association, April 16, 17, 18, 1929, Peoria, Illinois. Secretary, Ralph W. Poe, 44 White Court, Canton, Illinois.

Ship, Car and Building Projects Run Steel to High Total

Non-Ferrous Business in General Is Active—Zinc in Dull Market

TONNAGE requirements for finished steel, dominated by shipbuilding, structural and freight car projects, have expanded to extraordinary proportions in the past week and, considering that both production and demand bridged the year-end with much less than the usual subsidence, are getting the iron and steel markets away to an exceptionally good start for 1929.

The past week's bar specifications of a leading maker at Chicago have been the heaviest since the comparable period of 1928 and sales have been exceeded only once in that period.

In the lighter products demand did not drop into the usual valley over the holidays and in the absence of the usual early January recovery, demand appears less virile than it actually is.

In price as well as inquiry and bookings finished steel has opened 1929 auspiciously. Heavy finished material generally holds at the same level as in the fourth quarter.

Quality extras on flat rolled products are putting these lines on a more remunerative basis. The \$2 rise in wire products impelled consumers to cover well ahead last month, but less opposition is claimed by makers.

PIG IRON

A dearth of activity still is noted in the Pittsburgh pig iron market. Melters permitted stocks to decline and as a result occasional orders are received for rush shipment, but large tonnage buying is lacking.

Furnace stocks also are low, however, and producers believe the market is in a healthy position.

On No. 2 foundry iron \$18, valley, is still obtained for most small lots, but \$17.50 has entered a few transactions recently, and the market is \$17.50 to \$18. Bessemer generally commands no more than \$18.25, valley.

Recent small sales of malleable have been booked at \$18. Basic iron is quiet, with \$18 more of an asking price than a sales figure. The Shenango Furnace Co. blew in its second furnace last week.

Shipments of northern pig iron at Chicago are resuming at the peak rate of November. Thus far they are ahead of the first ten days of December. Melters are not anticipating far ahead and are insistent on quick delivery.

Recent orders are largely supplemental to contract purchases. Several melters are buying into second quarter. The base price is strong at \$20, Chicago, with Detroit and Toledo prices steady.

Several melters in the local district have resumed operations after several weeks' shutdown, while others are speeding up production. Prices still range from \$16.50 to \$17, base, Birmingham.

Business in most metals has been active in the past week and prices have been firm. Copper and lead buying has been outstanding and some business has been done in tin, but zinc has been dull.

Shipping schedules in most metals indicate that consumption will continue through the first quarter about on the record high levels established last autumn. In practically all lines the outlook is bright.

Copper wire prices went up $\frac{1}{4}$ cent on the first market day of the new year, but other brass and copper products were delayed in a corresponding rise until today. Mills are well booked through the first quarter on many products. Automobile companies have bought well into April.

COPPER

The market opened the new year with sales at 16.50c, delivered Connecticut, the same as at the close of 1928, but before the day was over large sales had been made at 16.75c.

Buying continued large for a day or two after that. The price has remained unchanged at the higher level ever since.

Export business was large at the outset of the new year and on the day following the domestic change the official price was marked up to 17c, c.i.f. European ports.

TIN

The price dipped from over 50c a pound to 49.25c, where it held for several days, and then as suddenly moved back to about 50c on large buying of standard tin on the metal exchange by speculators and good business in Straits tin with dealers and users.

Weakness of the market several days ago was due largely to the surprise that the trade had in the monthly statistics.

Domestic deliveries were of good size, 7,155 tons, while world visible supply was the largest in several years at an increase of practically 2,500 tons, much more than had been expected. The latter caused some gloom in the market, but on Monday prominent speculative interests in London were reported to be buyers and the market, after its usual fashion, faced about suddenly.

ZINC

Prime western has been extremely quiet the past week and unchanged at 6.35c, East St. Louis. A little business is done each day, but not enough to attract attention. It is believed that galvanizers are fairly well covered for January needs, but have most of their February and March requirements still to buy.

LEAD

Buying has been large and well rounded out in the past week. Prices went up 15 points on the first day of the new year, with tremendous buying just before and just after the change.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

PIG IRON

Chicago Fdy., No. 2	\$20 00
Southern Fdy. No. 2	22 51
Lake Superior Charcoal	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets	\$22 50
IX 20x28	25 50
IXX 20x28 56 sheets	14 50
IXXX 20x28	15 50
IXXXX 20x28	17 00

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IC 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IC 20x28, 20-lb. 112 sheets	20 25
IV 20x28, 20-lb. 112 sheets	23 00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 20
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC 20x28	12 75
Cokes, 135 lbs., base, IX 20x28	14 75
Cokes, 155 lbs., base, 2X, 56 sheets	8 50
Cokes, 175 lbs., base 3X, 56 sheets	9 35
Cokes, 195 lbs., base 4X, 56 sheets	10 25

BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 60
No. 22	per 100 lbs. 3 75
No. 24	per 100 lbs. 3 80
No. 26	per 100 lbs. 3 90
No. 27	per 100 lbs. 3 95
No. 28	per 100 lbs. 4 05
No. 29	per 100 lbs. 4 20
No. 30	per 100 lbs. 4 30

"ARMCO" GALVANIZED

"Armco" 24	per 100 lbs. \$6 15
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GALVANIZED

No. 16	per 100 lbs. \$4 15
No. 18	per 100 lbs. 4 30
No. 20	per 100 lbs. 4 45
No. 22	per 100 lbs. 4 50
No. 24	per 100 lbs. 4 65
No. 26	per 100 lbs. 4 80
No. 27	per 100 lbs. 4 90
No. 28	per 100 lbs. 5 00
No. 29	per 100 lbs. 5 15
No. 30	per 100 lbs. 5 55

BAR SOLDER

Warranted 50-50	per 100 lbs. \$32 00
Commercial 45-55	per 100 lbs. 29 00
Plumbers	per 100 lbs. 26 00

ZINC

In Slabs	\$ 7 25
SHEET ZINC	
Cask Lots (600 lbs.)	\$11 25
Sheet Lots	12 25

BRASS

Sheets, Chicago Base	20% c
Mill base	19% c
Tubing, brazed base	28% c
Wire, base	21% c
Rods, base	18% c

COPPER

Sheets, Chicago base	25% c
Mill base	24% c
Tubing, seamless base	26% c
Wire, No. 9, B & S Ga.	22% c
Wire, No. 10, B & S Ga.	22% c
Wire, No. 11, B & S Ga.	22% c

LEAD	
American Pig	\$7 50
Bar	8 50

TIN	
Pig Tin	per 100 lbs. \$58 00
Bar Tin	per 100 lbs. 59 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS	
Paper up to 1/16	6c per lb.
Roll board	6 1/2 c per lb.
Mill board 3/32 to 1/4	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES	
Furnace Pipe Cleaning Bristle with handle	each \$0 75
Flue Cleaning Steel only, each	1 25

CEMENT, FURNACE	
American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS	
Adams' Revolving	
Wt. Doz.	Price Doz.
4 in.	21 lbs. \$11 00
6 in.	24 lbs. 11 50
7 in.	30 lbs. 13 50
8 in.	33 lbs. 15 00
9 in.	51 lbs. 16 50
10 in.	56 lbs. 18 00
12 in.	66 lbs. 22 00
14 in.	110 lbs. 36 00

CLINKER TONGS	
Each	\$1 50

CLIPS	
Damper	
No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering	
Pointed Roofing	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES	
Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS	
Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS	
"Yankee" Hot Air	
7 inch, each 20c, doz.	\$1 60
8 inch, each 25c, doz.	2 20
9 inch, each 30c, doz.	2 60
10 inch, each 32c, doz.	2 80
Smoke Pipe	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	3 00
10 inch, doz.	3 75
12 inch, doz.	4 50

ADAMS No. 1 CHECK	
Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK	
8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated 75 & 10%	
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. Terne Steel	
Plain Rd. and Rd. Corr.	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated	
No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon	
28 Ga.	50%
26 Ga.	35%

Portico	
1", 1 1/4", 1 1/2"	45%
Copper	
16 oz., all designs	50%

Zinc	
All styles	60%

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge, Doz.	
5-inch	\$1 15
6-inch	1 25
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue.	
5-inch	\$1 60
6-inch	1 75
7-inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12 1/2 (100 rods)	\$23 68
1948-6-14 1/2 (100 rods)	43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Es.
No. 02 Gasoline Torch, 1 qt.	\$ 5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 60
No. 110 Automatic Gas Soldering Furnace	10 50
Quick Meal Stove Co. Vesuvius, F. O. B. St. Louis	30%
(Extra Disc. for large quantities.)	

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$2 00
Tubs (Galv. after made), No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, all brackets	87%
Single Strength, B, all brackets	88-5%
Double Strength, A, all brackets	87%
Double Strength, B, all brackets	88-5%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	25%
Milcor Triplex Wire	10%
Eaves Trough	
Milcor Steel (galv. after forming) List	plus 12 1/2%
Milcor Selflock B. T. Wire, List	plus 50%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$3 25

MITRES

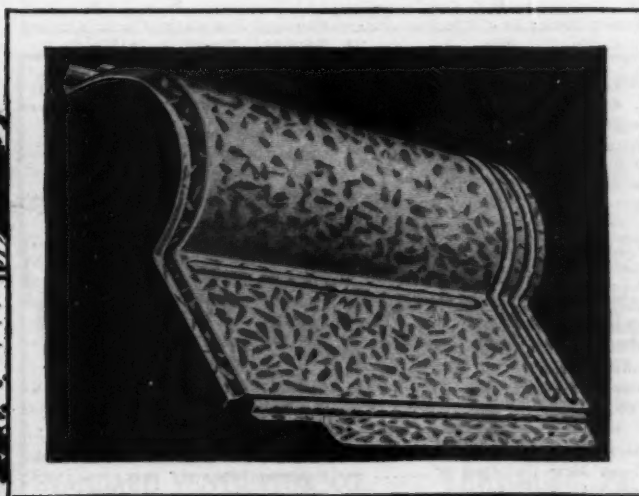
Galvanized steel mitres	
28 Ga.	70
26 Ga.	60-30

NAILS

Cut Steel, base	\$4 00
Wire	
Common	\$3 10
Cement Coated	3 10

(Continued on Page 72)

GARAGES... *Make them attractive with beautiful* SPANISH METAL TILE



WHEELING SPANISH METAL TILE AND FITTINGS make a roof that is rust-proof, leak-proof, fire-proof, lightning-proof—and a thing of beauty, too! Low cost makes it the practical roof for garages as well as larger buildings.

If you have overlooked this source of profit, make no mistake *now*. Wheeling Spanish Metal Tile Roofs are suitable for practically every type of residence and building. Old roofs badly in need of

repairs and at the mercy of storms or fires, can be replaced with Wheeling Spanish Metal Tile Roofs at low cost and each job nets you both profit and prestige.

For your business growth and profit opportunity use Wheeling Spanish Metal Tile and Fittings. The tiles are easy to lay—the fittings are easy to apply. And each unit is fabricated from Cop-R-Loy, the Copper Alloyed Steel, and guaranteed Hand Dipped in pure molten zinc.

WHEELING CORRUGATING COMPANY, Wheeling, W. Va.

New York Philadelphia Chicago Kansas City St. Louis Richmond
Chattanooga Minneapolis Des Moines Columbus, Ohio



Wheeling

Mention AMERICAN ARTISAN in your reply—Thank you!

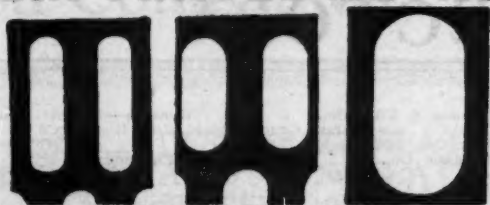
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PASTE		RIDGE ROLL	
Asbestos Dry Paste:		Galv., Plain Ridge Roll,	
200-lb. barrel	\$14 00	b'd'd	75-15-5%
100-lb. barrel	7 50	Galv., Plain Ridge Roll	
50-lb. pail	4 25	crated	75-15%
10-lb. bag	1 00		
5-lb. bag	55		
2½-lb. cartons	25		
POKERS, FURNACE		SCREWS	
Each	\$0 75	Sheet Metal	
POKERS, STOVE		7, ½x½, per gross	\$0 52
Nickel Plated, coil handles,		No. 10, ¾x3/16, per gross	68
per doz.	1 10	No. 14, ¾x¼, per gross	83
W'r't Steel, str't or bent,			
per doz.	\$0 75		
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$22 00
Cor. Rd., Plain Rd., or Sq.		Lennox Throatless	
Galvanized		No. 18	35%
Crated and nested (all gauges)	75-7½%	Shear blades	10%
Crated and not nested (all gauges)	75-2½%	(f. o. b. Marshalltown, Iowa)	
FURNACE PIPE		SHIELDS, ADJUSTABLE RADIATOR	
Double Wall Pipe and Fittings	60%	No. 1 "Gem" 11" to 17"	30%
Single Wall Pipe, Round		No. 2 "Gem" 14" to 24"	30%
Galvanized Pipe	60%	No. 8 "Gem" 35" to 65"	30%
Galvanized and Tin Fittings	60%		
LEAD		SHOES	
Per 100 lbs.	\$12 50	Galv. 28 Gauge, Plain or corrugated round flat crimp	60%
STOVE PIPE		26 gauge round flat crimp	45%
"Milcor" "Titelock" Uniform Blue Stove		24 gauge round flat crimp	15%
28 gauge, 5 inch U. C. nested	11 00		
28 gauge, 6 inch U. C. nested	12 00		
28 gauge, 7 inch U. C. nested	14 00		
30 gauge, 5 inch U. C. nested	10 25		
30 gauge, 6 inch U. C. nested	11 00		
30 gauge, 7 inch U. C. nested	13 00		
T-Joint Made up		SNIPS, TINNERS	
6-inch, 28 ga...per doz.	\$ 3 40	Clover Leaf	40 & 10%
All Zinc		National	40 & 10%
No. 11, all styles	60%	Star	50%
		Milcor	Net
PULLEYS		SQUARES	
Furnace Tackle...per doz.	\$0 85	Steel and Iron	Net
Baseboard, 1 piece	8 50	(Add for bluing \$3 per doz. net)	
Furnace Screw (enameled)		Mitre	Net
per doz.	75	Try	Net
		Try and Bevel	Net
PUTTY		Try and Mitre	Net
Commercial Putty, 100-lb. Kits	\$3 50	Fox's	per doz. \$6 00
QUADRANTS		Winterbottom's	10%
Malleable Iron Damper	10%		
REDUCERS—Oval Stove Pipe		STOPPERS, FLUE	
7-6, 28-gauge, 1 doz. in carton	\$2 00	Common	per doz. \$1 10
		Gem, No. 1	per doz. 1 10
		Gem, flat, No. 3	per doz. 1 00
REGISTERS AND BORDERS		VENTILATORS	
Baseboard, Floor and Wall		Standard	30 to 40%
Cast Iron	20%		
Steel and Semi-Steel	33½%		
Baseboard, 1 piece	33½-20%		
Baseboard, 2 piece	33½%		
Wall	33½%		
Adjustable Ceiling Ventilators	33½%		
Register Faces—Cast and Steel		WIRE	
Japanned, Bronzed and Plated, 4x6 to 14x14	33½%	Black annealed wire, No. 9, per 100 lbs.	\$3 30
Large Register Faces—Cast, 14x14 to 38x42	50%	Galvanized barb wire, per 100 lbs.	3 90
Large Register Faces—Steel, 14x14 to 38x42	60%	Cattle Wire—galvanized catch weight spool, per 100 lbs.	3 80
Ventilating Register		Galvanized Plain Wire, No. 9, per 100 lbs.	3 25
Per gross	\$ 00		
Small, per pair	30		
Large, per pair	50		

PERFORATED METALS

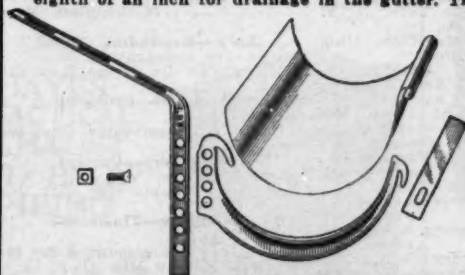
All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.-CHICAGO, ILL., U. S. A.
NEW YORK OFFICE: 114 LIBERTY ST.

ROOF GUTTER SUPPORTS

This illustration shows, unassembled, one of the many styles of eaves trough hangers made by us which may be adjusted every eighth of an inch for drainage in the gutter. These hangers are



widely used throughout the United States. Write for catalog No. 27 which also illustrates and describes conductor hooks and fasteners.

Free Samples Gladly Furnished.

L. D. BERGER COMPANY

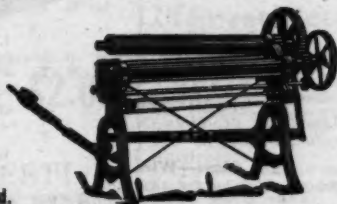
57 N. 2nd St., Philadelphia, Pa.

50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

We build a complete line of Shears and punches, all sizes, for hand or belt power.

Write for Catalog "R"
BERTSCH & CO., Cambridge City, Ind.

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IMMEDIATE SHIPMENT FROM STOCK

More than twenty kinds of Prime quality sheets are carried in stock. There is a special sheet for every purpose. Also Bars, Angles, Rivets, Bolts, Tools and Metal-Working Machinery. Write for Journal and Stock List.

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IF there is a tool or machine that you need and you don't know where to get it—

Write to the

Notes and Queries Dept.

of

AMERICAN ARTISAN

EARLE'S VENTILATOR

IMPROVED REVOLVING

It runs in a self-lubricating bearing that is not affected by heat or cold. It is noiseless and produces an upward current of air. No down draft. It will satisfy and give you a good profit.

ASK YOUR NEAREST JOBBER

BERGER BROS. CO.

229 to 237 ARCH STREET
WAREHOUSES AND FACTORY: 100 TO 114 BREAD STREET
PHILADELPHIA, PA.
Manufacturers of "Quaker City" line of Mixers, Ends, Caps and Outlets

The NEW IMPROVED "STANDARD" ROTABLE VENTILATOR

THIS favorite ventilator has been further improved to insure—

Now made of
ARMCO IRON

Greater Durability
Quieter Operation
Greater Efficiency
Better Balance

The New Cone-top Suspension, new Bronze Guide Bushings, and Cross Braced Skirt are the new features.

Let us tell you in detail all about this better ventilator.

Write for special circular and prices today



"Standard" Ventilator and Chimney Cap—
Most Efficient Combination on the market.

STANDARD VENTILATOR CO.,

LEWISBURG, PA.

ROLLED STEEL FLANGES

6 Inches and Larger
1/2 Inch and Heavier
Made to Fit—

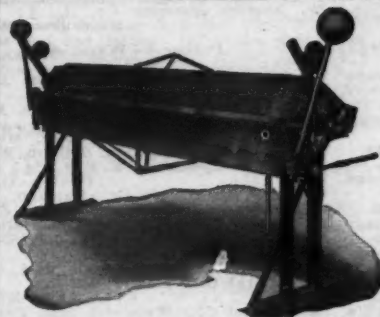
Lock Seam, Riveted
Seam, Spiral and
Welded Pipe

Write for Catalogue of
Sheet Metal Products

If it is made of
Sheet Metal, send
us detail or blue
print for price.

Chicago Metal Mfg. Co.

3718 S. Rockwell St. CHICAGO, ILL.

CHICAGO STEEL CORNICE BRAKES
STANDARD OF THE WORLD

THE BEST BRAKE FOR ALL PURPOSES: Most Durable, Easiest Operated, Low in Price. Made in All Lengths and to Bend All Gauges of Metal. Over 25,000 in use.

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Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

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Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

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Copper & Brass Research As-
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Thermo-Control Regulator Co.,
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Milwaukee Corrugating Co.,
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Massillon, Ohio
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The, Cleveland, Ohio
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Thermo-Control Regulator Co.,
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Mueller Furnace Co., L. J.,
Milwaukee, Wis.

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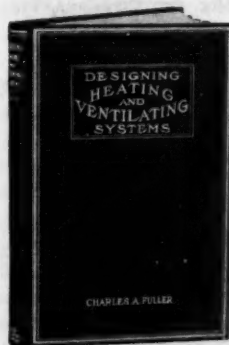
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(Continued on page 75)

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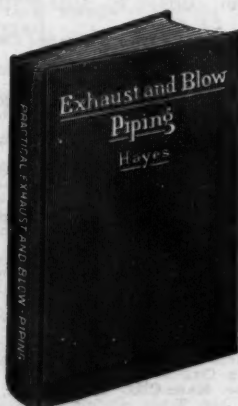
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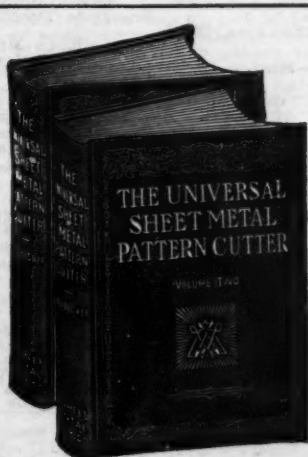
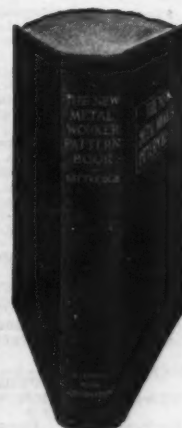
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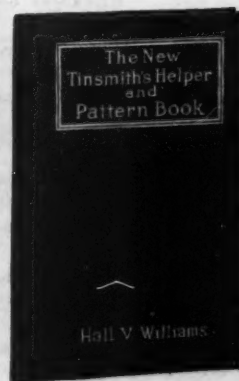
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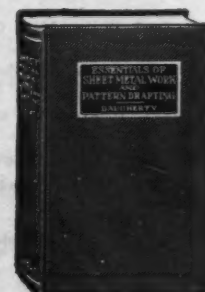
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Wanted—Sheet metal worker not over 40 who is looking for good steady position, to locate in city of 8,000, must have experience in factory and general sheet metal and furnace work. Have position for such a man. Address **Ed. A. Knabe Hdwe. & S. M. Shop, Rock Falls, Ill. T-489**

Wanted—An all around sheet metal worker, one with practical experience in correct designing and building of the better grade electric signs, with knowledge of painting, wiring and erecting of such work. Address **Virginia Sign Co., P. O. Box 123, North Emporia, Va. S-488**

Salesman wanted to sell Genasco roofing direct to home owner. Large territory and an excellent opportunity to a man who will get out and hustle. Must have a car. Address **X-489, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.**

Wanted—A good live salesman for furnace fittings and registers for central and upper Wisconsin, on commission basis. Address **B-489, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

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Wanted—Thoroughly experienced sheet metal worker as shop foreman in a strictly union shop. Must be able to lay out and thoroughly understand all branches of the trade. To a competent man the position offers steady employment. Give full particulars as to ability, experience and salary expected in first letter. Address **A-490, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.**

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Wanted—Used 8-foot cornice brake. Chicago steel brake preferred. State full particulars and lowest cash price. Address **C-490, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.**

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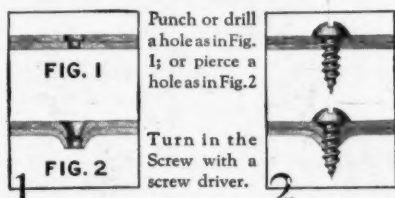
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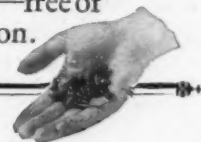


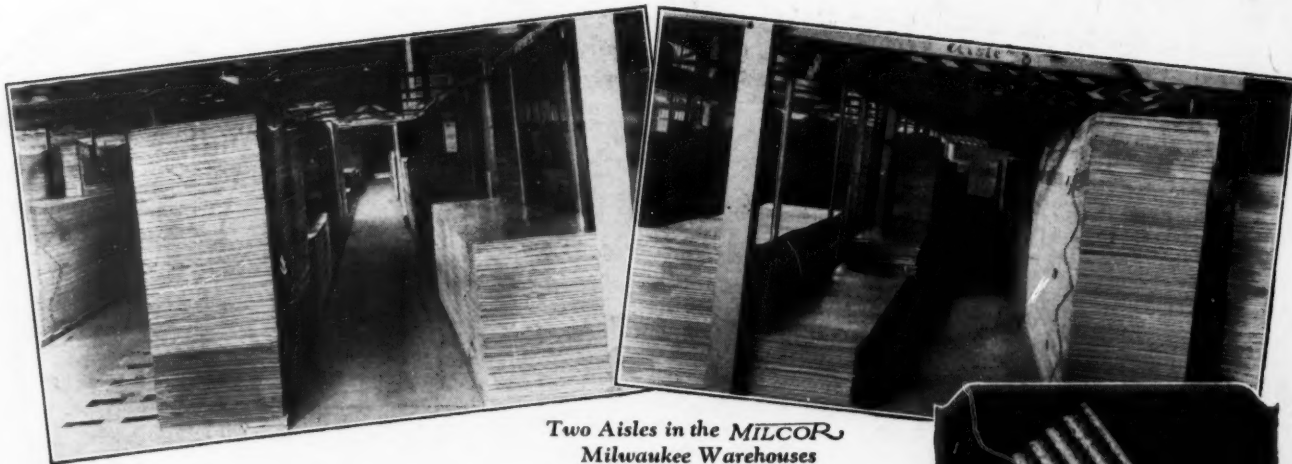
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